

# A nomenclator of extant and fossil taxa of the Valvatidae (Gastropoda, Ectobranchia)

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#### **Abstract**

A compilation of all supra- and (infra-) specific taxa of extant and fossil Valvatidae, a group of freshwater operculate snails, is provided, including taxa initially described in this family and subsequently classified in other families, as well as names containing errors or misspellings. The extensive reference list is directly linked to the available electronic source (digital view or pdf-download) of the respective papers.

#### **Keywords**

Gastropoda, Valvatidae, freshwater snails, taxonomy, www-references

#### Introduction

Georg Ritter von Frauenfeld (1864: Introduction): "Ich habe in nachfolgendem Verzeichnisse versucht, alle Namen sowohl der fossilen wie der lebenden Arten, die mir in der alten Lamark'schen Gattung *Paludina* bekannt, oder nach deren Zerfallen in die betreffenden Gattungen bis in die neueste Zeit in die Literatur eingeführt wurden, zusammen zu stellen ...... Dass ich .. somit manches todte Synonym zur Welt bringe, wird wohl nicht getadelt werden, da solche Namen fort und fort wie Irrlichter in den Sammlungen herumwandern, ohne Ruhe zu finden. Die Arbeit selbst .... lässt die bedeutenden Lücken sehen, die für mich durch die unsicheren und mir unbekannten Arten noch bestehen."

["In the following catalog I have tried to collect all names of the fossil and extant species, which are known to me in the old genus *Paludina* of Lamarck, or have been described after its splitting into the various genera until most recent times in the literature...... That

I will give rise to certain dead synonyms will probably not be criticized, since such names are like ghost-lights migrating without rest in the collections. The work itself ..... also sheds light on the considerable gaps, which still exist due to the uncertain and unknown species"].

This citation, which is nearly 150 years old, is equally applicable to another group of freshwater operculate gastropods, the Valvatidae or valve snails. The main goal of current catalogue is to summarize all the available information on all supra- and (infra-) specific taxa of extant and fossil Valvatidae in order to facilitate future taxonomic research. This is the first such compilation for the Valvatidae since the list of Wenz (1928b), which was restricted to fossil taxa. In addition, the present contribution should also facilitate future taxonomic work of Valvatidae and other freshwater gastropods by providing direct internet links to many important older taxonomic papers.

## Part I: Supraspecific taxa in Valvatidae

#### General remarks

Until recently nearly all supraspecific taxa of Valvatidae were described based on shell characters alone. However, shells of certain taxa (e.g. the wide-spread *Valvata piscinalis*) are highly variable due to ecomorphism or ontogenetic change (e.g. Baker 1928; Favre 1927, 1935; Haas 1938; Binder 1967a; Scholtz and Glaubrecht 2010, Welter-Schultes et al. 2011); further some hydrobiid species with very similar shells have been often misidentified as valvatids.

Recent molecular data cast strong doubts that any of these higher-level names (at least concerning extant taxa) represent a monophyletic clade. The only notable exception may be *Borysthenia* Lindholm, 1914, which is characterized not only by shell characters, but also by very slender (vs. broad) marginal radular teeth, which is probably an apomorphic character among the Valvatidae. On the other hand, anatomical characters of *Borysthenia naticina* are very similar to those of other valvatids (Hawe et al. 2013). In particular molecular (as well as anatomical) data are needed to clear up the supraspecific systematics of Valvatidae.

I also list here supraspecific "names" based on various types of error in order to correct the various internet listings.

## Part IA. Family-group level taxa

BORYSTHENIINAE Starobogatov, 1983 (in Sitnikova 1983)

Original source: Sitnikova 1983: 34.

Original classification: Subfamily of Valvatidae.

Type genus: *Borysthenia* Lindholm, 1914.

#### ECTOBRANCHIA Fischer, 1884

Original source: Fischer 1884: 652.

Remarks: Ectobranchia currently corresponds to superfamily VALVATOIDEA Gray, 1840 (first used as superfamily name by Hannibal 1912: 196). I prefer Ectobranchia in favor of Valvatoidea, because (1) Ectobranchia is a non- ranked taxon, whereas the ending "-oidea" makes Valvatoidea a superfamily (ICZN Art. 29.2), and (2) Ectobranchia cannot be confused with Valvatida resp. Valvatacea Blake, 1987 (Echinodermata - Asteroidea), a junior homonym.

#### + PROVALVATIDAE Bandel, 1991

Original source: Bandel 1991: 21.

Original classification: Family of Valvatoidea.

Type genus (monotypy): + Provalvata Bandel, 1991.

Remarks: Provalvatidae was erected for Jurassic ectobranchs with a hyperstrophic protoconch and living in brackish water. The latter habitat is considered transitional between marine forerunners and the modern freshwater valvatids. However, many Jurassic valvatids were described from purely freshwater habitats, thus *Provalvata* cannot be an ancestor of them.

#### VALVATIDAE Gray, 1840

Original source: Gray 1840: 79.

Remarks: According to Bouchet and Rocroi (2005: 181) authorship of Valvatidae is sometimes (e.g. by Bandel 2010) attributed to Thompson (1840; Valvatadae) (often also cited as Thomson in online resources). However, Thompson's paper (September 1840) appeared after Gray (March to June 1840).

#### Part IB. Genus-level taxa

+ Aegaea Oppenheim, 1891 (non Oppenheim 1890: 592 – nomen nudum)

Original source: Oppenheim 1891: 462.

Original classification: Subgenus of Valvata.

Type species: Valvata (Aegaea) vivipariformis Oppenheim, 1891 by monotypy.

Remarks: (1) Note page 462, footnote: "Nachträglich sehe ich, dass *Valvata* (*Cincinna*) sorensis Dybowski aus dem Baikalsee sich durch ihre Verzierungen mit Längsrippen der fossilen Form einigermaßen nähert [Afterwards I see that *Valvata* (*Cincinna*) sorensis Dybowski from the Lake Baikal is to some extent close to this fossil form by its decorations with longitudinal ribs]".

(2) Considered to be preoccupied by *Aegea* Rambur, 1866 (ed. 2, fasc. 2, pl. 19; Lepidoptera: **Geometridae**), therefore replaced by *Aegionia* Cossmann, 1921. However, the Code (ICZN Art. 56.2) now accepts one–letter differences for genus–group names.

## + Aegionia Cossmann, 1921

Original source: Cossmann 1921: 180.

Original classification: Subgenus of Valvata.

Type species: Valvata (Aegaea) vivipariformis Oppenheim, 1891 by original designation.

Remarks: *Aegionia* Cossmann, 1921 was expressly established as a new replacement name for *Aegaea* Oppenheim, 1891 in the belief that *Aegea* Rambur, 1866 (Lepidoptera) would be a senior homonym (which is not the case, however, see for *Aegaea* Oppenheim, 1891).

## Alienella Starobogatov & Zatravkin, 1985

Original source: Starobogatov and Zatravkin 1985: 1156.

Original classification: Sectio ("sect.n.") of subgenus Sibirovalvata in genus Cincinna.

Type species: Valvata aliena Westerlund, 1877 by original designation.

## + Amplovalvata Yen, 1952

Original source: Yen 1952: 21, 27, 32, 33 (name only), 39 (definition).

Original classification: Genus of Valvatidae.

Type species: + Amplovalvata cyclostoma Yen, 1952 by original designation.

#### *Andrusovia* Brusina, 1902 (in Westerlund 1902)

Original source: Westerlund 1902: 133.

Original classification: Genus of Valvatidae (still listed there e.g. in ION).

Type species: *Andrusovia dybowskii* Brusina, 1902 (in Westerlund 1902) by original designation by Brusina (MS).

Remarks: Westerlund (1902: 133) made "Brusina (MS)" responsible for the genus name, thus the requirement of ICZN Art. 50.1.1 is fulfilled. Currently (e.g. Kantor et al. 2011: 38) classified among the **Hydrobiidae** – **Belgrandiinae**.

# "Andrussovi" mentioned in Dybowski and Grochmalicki (1917: 51)

Misspelling of *Andrusovia* Brusina in Westerlund, 1902, not *Andrussovia* Derjavin, 1927 (Crustacea: Amphipoda).

# + Aphanotylus Brusina, 1894

Original source: Brusina 1894: 179 (name only), 182 (definition).

Original classification: Genus of Valvatidae.

Type species: + Aphanotylus cossmanni Brusina, 1894 by original designation.

Remarks: Replacement name for *Pachystoma* Sandberger, 1875 (see there), which was preoccupied by *Pachystoma* Guilding, 1828 [Ampullariidae]. However, Oppenheim (1892) previously proposed *Stiphrostoma* as a replacement name for *Pachystoma* Sandberger, 1875 (see also Bandel and Riedel 1994: 22).

# + *Ariomphalus* Bandel & Riedel, 1994

Original source: Bandel and Riedel 1994: 22.

Original classification: Genus of Valvatidae.

Type species: + Pachystoma varicatum Tausch, 1886 by original designation.

## Atropidina Lindholm, 1906

Original source: Lindholm 1906: 190.

Original classification: Subgenus of Valvata Müller, 1773.

Type species: "Valvata pulchella Stud." by original designation.

Remarks: Lindholm (1906) did not provide more detailed information that could distinguish Studer's 1789 usage (= *Valvata piscinalis* (Müller 1774)) from that of Studer 1820 (= *Valvata studeri* Boeters & Falkner, 1998). Studer (1820) just used the 1789 name and did not establish another new name in 1820 - and for those authors who argue that he did, there is no indication that Lindholm (1906) meant the 1820 usage or name. This problem needs a ruling by the ICZN to designate *Valvata studeri* Boeters & Falkner, 1998 as type under the plenary powers in ordert o correspond tot he modern understanding of *Atropidina* as being used for what is now known as *Valvata studeri* and related species.

## *Biwakovalvata* Starobogatov, 1983 (in Sitnikova 1983)

Original source: Sitnikova 1983: 35.

Original classification: Subgenus of Megalovalvata Lindholm, 1906.

Type species: Valvata (Cincinna) biwaensis Preston, 1916 by original designation.

## Borysthenia Lindholm, 1914

Original source: Lindholm 1914: 167.

Original classification: Genus of Valvatidae.

Type species: Valvata jelskii Crosse, 1863 by original designation by Bourguignat (1877).

Remarks: Replacement name for preoccupied *Jelskia* Bourguignat, 1877, non Taczanowski, 1871: 128 (Arachnida: Araneae). This is the only genus characterized by current taxonomists also by radular characters (slender marginals), whereas the usually stated ovovivipary is at least doubtful (Hawe et al. 2013).

# "Cicinna" mentioned in Picaglia (1892: 188).

Misspelling of Cincinna.

# "Cinciana" mentioned in Oppenheim (1891: 462).

Misspelling of Cincinna.

# "Cincinna" mentioned in Menke (1848)

Original source: Hübner 1810: 56 (Zwei Briefe, I), fide Menke (1848: 55).

Type species: Nerita piscinalis Müller, 1774 [according to Menke (1848)].

Remarks: This name is usually attributed to Hübner (1810). However, Kennard and Woodward (1926: 27: "teste Menke 1848") doubted the validity of this name. According to Welter-Schultes (2012a: 42; Welter-Schultes et al. 2011: 10) and "animal base" (checked Sept. 2013; see http://www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/home/genustaxon?id=3710) the name *Cincinna* currently is not available and the name cannot be used under the Code: "Attributed to Hübner 1810, appeared in a

letter, obviously unpublished, not preserved, not even its title is known. Falkner et al. (2002: 93) regarded this name as available without providing evidence that (1) Hübner's letter was published work under ICZN Art. 8 and 9 (both Menke 1848: 55 and Férussac [1821–1822]: 83 (folio p. 87) did not state that Hübner's letter was printed), and (2) that the name was made available by meeting the conditions in ICZN Art. 11 and 12 (Menke mentioned the name, but no constraints to assume that Hübner had combined it with a description or indication). The assumption, that Hübner might have employed it for *Valvata piscinalis* is arbitrary and unsubstatiated. Falkner et al.' 2002 view is not tenable. *Cincinna* was not mentioned by Férussac [1821–1822] who stated "[Hübner] a publié deux lettres". Menke (1848: 55–56) also talked of letters by Hübner, one letter with 2 pages, the other one with 4 pages. Both sources did not provide evidence that these letters were printed and published for the permanent scientific record, which would qualify them as published under ICZN Art. 8 and 9. Menke (1848: 56) mentioned a name "*Cincinna* (= *Valvata*)" without providing evidence that *Cincinna* was made available by meeting the conditions in ICZN Art. 11 and 12. Menke (1848) did not make it available".

#### Cincinna Mörch, 1864

Original source: Mörch 1864: 321 (referring to Hübner).

Original classification: subgenus of Valvata.

Type species: not specified. Mörch included *Valvata piscinalis* Müller, 1774, *Valvata Pusilla* (Müller, 1774) and *Valvata antiqua* (Morris, 1843).

Remarks: As outlined above *Cincinna* attributed to Hübner (1810) or Menke (1848) is not available. On the other hand, *Cincinna* has not been used elsewhere in zoology. According to Wenz (1928b: 2422) Mörch (1864: 321) first used the name *Cincinna* with a reliable diagnosis and thus made it available. I have not found an earlier diagnosis of *Cincinna*.

## "Cincinnaa", "Cincuma" in Schlesch (1925: 91, 92).

Misspelling of Cincinna.

"Concinna Hubn." mentioned in Adams and Adams (1854: 343).

"Concinna Hübner, 1810" mentioned in Lindholm (1906: 190, footnote). Misspelling of Cincinna in both cases.

#### Costovalvata Poliński, 1929

Original source: Poliński 1929: 65, 133 (name only), 137 (definition).

Original classification: Subgenus of Valvata.

Type species: Valvata (Costovalvata) hirsutecostata Poliński, 1929 by original designation.

#### Cristatiana Servain, 1888

Original source: Servain 1888: 309.

Type species: Valvata planorbulina Paladilhe, 1867 by monotypy.

Remarks: Servain (1888) cited *Valvata cristata* Müller, 1774, but did not give a direct and unambiguous indication that *V. cristata* was to be included in *Cristatiana*.

#### + Fascivalvata Pan, 1982

Original source: Pan 1982b: 89 [Chinese text], 108 [English text].

Original classification: Genus of **Euomphalidae**.

Type species: Fascivalvata minuta Pan, 1982 by original designation.

Remarks: Although the name suggests valvatid affinities, this genus belongs to the Euomphalidae and has never be classified among the Valvatidae.

#### Globuliana Paladilhe, 1866

Original source: Paladilhe 1866–1869: 26 (resp. Paladilhe 1866: 169).

Original classification: Genus of Valvatidae.

Type species: *Valvata moquiniana* Dupuy, 1851 by subsequent designation under ICZN Art. 70.3 by Kadolsky (2008: 116).

## Gyrorbis Fitzinger, 1833 (non Gyrorbis Moquin-Tandon, 1856: 423).

Original source: Fitzinger 1833: 117.

Type species: *Valvata cristata* Müller, 1774 by subsequent designation by Herrmannsen (1847: 495).

Remarks: (1) Neither a diagnosis of the genusname nor a type species were provided by Fitzinger (1833), but since the name was established before 1931 with species included, the name is available. In addition, *Gyrorbis* Moquin-Tandon, 1856 was replaced by *Wüstia* Honigmann, 1909: 297) because of the earlier name by Fitzinger (1833).

- (2) Valvata spirorbis Draparnaud, 1809 is often regarded as junior synonym of Valvata cristata Müller, 1774, but has been considered as separate species by recent Russian authors, e.g. Anistratenko and Chernogorenko (1989), Anistratenko and Anistratenko (2001: 135) and Kantor et al. (2011: 74).
- (3) According to Dall (1905: 85) "This subgenus [Gyrorbis] was called 'Gyrorbis Agassiz,' by Moquin Tandon [1856: 423], but Agassiz never proposed any such genus or group".

#### + *Heterovalvata* Munier-Chalmas, 1879

Original source: Munier-Chalmas 1879: 34.

Original classification: Genus of Valvatidae.

Type species: + *Heterovalvata disjuncta* Dollfus, 1877 by monotypy (*Heterovalvata delessei* Munier-Chalmas, 1879 was originally included as a second species, but this was a nomen nudum).

## + Jekeliusiana Gozhik, 2002

Original source: Gozhik 2002: 49.

Original classification: Subgenus of Valvata.

Type species: +Valvata (Jekeliusiana) oecsensis halavatsi Gozhik, 2002 by original designation.

# Jelskia Bourguignat, 1877

Original source: Bourguignat 1877: 92. Original classification: Genus of Valvatidae. Type species: Valvata jelskii Crosse, 1863 by original designation.

Remarks: Not valid, because preoccupied by *Jelskia* Taczanowski, 1871: 97 resp. 128 (Chelicerata: Araneae), replaced by *Borysthenia* Lindholm, 1914.

#### Liratina Lindholm, 1906: 190

Original source: Lindholm 1906: 190, 191.

Original classification: Subgenus of Valvata Müller, 1773.

Type species: Valvata baicalensis Gerstfeld, 1859 by original designation.

#### + Loriolina Huckriede, 1967

Original source: Huckriede 1967: 170. Original classification: Genus of Valvatidae.

Type species: + Valvata loryana Loriol, 1865 by monotypy.

#### Lyogyrus Gill, 1863

Original Source: Gill 1863: 34 (footnote). Original classification: Genus of Valvatidae.

Type species: Valvata pupoidea Gould, 1841 by original designation.

Remarks: According to Walker (1918: 33), Berry (1943: 57) or Kabat and Hersh-

ler (1993) to be classified in the **Amnicolidae** or **Hydrobiidae**.

## "Magovalvata" mentioned in Dybowski 1911: 965.

Misspelling of Megalovalvata Lindholm, 1906

## Megalovalvata Lindholm, 1906

Original source: Lindholm 1906: 190.

Original classification: Subgenus of Valvata Müller, 1773.

Type species: Valvata grubei Dybowski, 1875 by original designation.

# + Mesovalvata Wei, 1984 (in Xinjiang Dizhi Ju 1984)

Original source: Xinjiang Dizhi Ju (1984: 83) fide Zoological Record (126(9): #3985).

Original classification: Subgenus of Valvata.

Type species: + Valvata (Mesovalvata) karameilica Wei, 1984 by original designation.

# + Michaudia Locard, 1883 (non Pallary 1926: 15, Helicidae)

Original source: Locard 1883a: 82.

Original classification: Subgenus of Valvata.

Type species: Valvata falsani Locard, 1883 by monotypy (see there).

## Microcincinna Starobogatov, 1983

Original source: Sitnikova 1983: 34.

Original classification: Subgenus of Valvata.

Type species: Valvata geyeri Menzel, 1904 by original designation.

## + Microcyclas Raspail, 1909

Original source: Raspail 1909: 197.

Type species: Microcyclas lamellosus Raspail, 1909 by original designation.

Remarks: Cossmann (1921: 174) and Pacaud and Le Renard (1995: 170) considered this genus to be classified in the Valvatidae.

## Minutiana Fagot, 1892

Original source: Fagot 1892: 32.

Type species: Valvata turgidula Bourguignat, 1889 by monotypy.

Remarks: Kadolski (2008: 116) considered this genus as synonym to *Globuliana* Paladhile, 1866 (**Hydrobiidae**).

## Ochridotropidina / Ohridotropidina (nomen nudum)

Original source: Hadžišce 1955: 176, legend of textfigure.

Remarks: As outlined by Hadžišce (1956: footnote at page 58), the name in the legend, i.e. "Valvata (Ochridotropidina) polinskii", was based on an error and according to the author should be Valvata (Ohridotropidina) relicta Poliński, 1929. However, also the name Ohridotropidina never was diagnosed and thus is not an available name.

## + Oncostoma Brusina, 1894 (not Sclater 1862: 208 [Aves: Tyrranidae])

Original source: Brusina 1894: 185.

Original classification: Genus of Valvatidae.

Type species: + *Valvata marginata* Michaud, 1855 by monotypy by Sandberger (1875).

Remarks: Replacement name for preoccupied Pachystoma Sandberger, 1875.

Likewise invalid, because a junior objective synonyme of *Stiphrostoma* Oppenheim, 1892 and *Oncostoma* Sclater, 1862.

# + Pachystoma Sandberger, 1875

Original source: Sandberger 1875: 711.

Original classification: Genus of Valvatidae.

Type species: + Valvata marginata Michaud, 1855 by monotypy.

Remarks: *Pachystoma* Sandberger, 1875 is preoccupied by *Pachystoma* Guilding, 1828 [Ampullariidae]. Oppenheim (1892: 776) proposed *Stiphrostoma* as a replacement name, whereas Brusina (1894: 185) proposed *Oncostoma* as a replacement name, the latter is again preoccupied, however.

# Pamirocincinna Sitnikova & Starobogatov, 1983 (in Sitnikova 1983)

Original source: Sitnikova 1983: 34.

Original classification: Subgenus of Cincinna.

Type species: Valvata pamirensis Starobogatov, 1972 by original designation.

# Piscinaliana Paladilhe, 1866 (non Bourguignat 1881: 333 [Bivalvia – Unionidae])

Original source: Paladilhe 1866–1869: 26 (resp. Paladilhe 1866: 169).

Original classification: Genus of Valvatidae.

Type species: Nerita piscinalis Müller, 1774 by original designation.

Remarks: An objective junior synonym of *Cincinna* with the same type species.

#### Planella Schlüter, 1838

Original source: Schlüter 1838: 13.

Original classification: Genus of Valvatidae.

Type species: Valvata cristata Müller, 1774 by monotypy.

Remarks: An objective junior synonym of *Valvata* with the same type species

(ICZN Art. 61.3.3).

#### Planorbiana Paladilhe, 1866

Original source: Paladilhe 1866–1869: 26 (resp. Paladilhe 1866: 169).

Original classification: Genus of Valvatidae.

Type species: Valvata cristata Müller, 1774 by original designation.

Remarks: An objective junior synonym of *Valvata* with the same type species (ICZN Art. 61.3.3).

#### *Planorbitina* De Betta, 1870

Original source: De Betta 1870a: 127.

Original classification: Subgenus of Valvata.

Type species: not clearly designated. De Betta's (1870) paper contained *Valvata* cristata (with synonym *Valvata planorbis*) and *Valvata spirorbis*.

Remarks: An objective junior synonym of *Valvata* with the same type species (ICZN Art. 61.3.3).

#### Pleurovalvata Haas, 1939

Original source: Haas 1939: 101.

Original classification: Subgenus of Valvata.

Type species: Valvata sincera Say, 1824 by original designation.

# + Polytropis Sandberger, 1875 (non Koninck 1881: 107).

Original source: Sandberger 1875: 697.

Original classification: Subgenus of Valvata.

Type species: + *Valvata balatonica* Rolle, 1861 by subsequent designation by Cossmann (1921: 172). Based on SEM of the protoconch Bandel (2010: 105, pl. 9: figs 111–114) designated the species as type species of *Jekeliella* Bandel, 2010 (**Hydrobiidae**).

#### "*Protovalvata*" mentioned in Pană, 2000

Original source: Pană 2000: 88.

Original classification: Genus of Valvatidae.

Type species not explicitly designated: "Genotype: LPB IIIg no.; Pl. V, figs 26–27". This term is listed as the holotype of *Protovalvata naticiformis* n.sp. described at page 89 in the same paper as first species after the genus diagnosis.

Remarks: A specimen cannot serve as type of a genus–group name, only a nominal species can (ICZN Art. 61.1.2, 67.1.). Accordingly, the genus name is not available.

#### + Provalvata Bandel, 1991

Original source: Bandel 1991: 21.

Original classification: Genus of Provalvatidae.

Type species: + Valvata helicoides Loriol & Jaccard, 1865 by original designation.

## Pseudomegalovalvata Kozhov, 1936

Original source: Kozhov 1936: 29.

Original classification: Sectio ("sect.n.") of subgenus Megalovalvata.

Type species: *Valvata* (*Megalovalvata*) *bathybia* W. Dybowski, 1886 by monotypy. Remarks: Although introduced with an infra–subgeneric rank, the name is available at subgeneric rank (ICZN Art 10.4; Welter-Schultes 2012b: 14).

## "Pseudovalvata" mentioned in Bekman and Starobogatov (1975: 95).

Misspelling of *Pseudomegalovalvata* at the description of *Valvata* (*Pseudovalvata*) profundicola Bekman & Starobogatov, 1975. The name has never been diagnosed.

## Sibirovalvata Starobogatov & Streletzkaja, 1967

Original source: Starobogatov and Streletzkaja 1967: 223.

Original classification: Subgenus of Cincinna.

Type species: Valvata confusa Westerlund, 1897 by original designation.

# + Sinorificium Guo, 1982 (in Guo, Yü and Pan 1982)

Original source: Guo, Yü and Pan 1982: 33.

Original classification: Genus of Valvatidae.

Type species: Sinorificium yumenensis Guo, 1982 by original designation.

Remarks: According to Sepkoski (2002: 99) a member of Caenogastropoda (**Neotaenioglossa**).

# + Stiphrostoma Oppenheim, 1892

Original source: Oppenheim 1892: 776.

Original classification: Genus of Valvatidae.

Type species: + Valvata marginata Michaud, 1855 by monotypy by Sandberger (1875)

Remarks: Expressly established as a new replacement name for *Pachystoma* Sandberger, 1875, by Oppenheim treated as a junior homonym of *Pachytoma* Swainson, 1840 (**Helicinidae**), the latter was incorrectly spelled *Pachystoma* by Fischer (1885, Manuel de Conchyliologie). Accordingly, *Stiphrostoma* was correctly established as a new replacement name, the act was just incorrectly justified. But this has no influence on the status of *Stiphrostoma* as a new replacement name.

# Tropidina Adams & Adams, 1854 (non Mörch, 1864)

(often cited as Tropidina H. & A. Adams, 1854)

(not Tropidina Martins, 1968 (p. 331), a subtribe of cerambycid Coleoptera).

Original source: Adams and Adams 1854, Vol. 1: 344.

Original classification: Subgenus of Valvata.

Type species: *Cyclostoma tricarinata* Say, 1817 by subsequent designation by Lindholm (1906: 191).

Remarks: *Tropidina* in Mörch (1864: 320) is explicitly attributed by Mörch to Adams & Adams and is therefore not a separately available name.

## + Turrivalvata Papp, 1953

Original source: Papp 1953: 111.

Original classification: Subgenus of Valvata.

Type species: + Valvata politioanei Jekelius, 1944 by original designation.

Remarks: Not listed in Nomenclator Zoologicus (Neave 1939–1940/2005)

#### Valvata Müller, 1773

Original source: Müller 1773: unpaginated first part ["n29" of archive.org ] http://archive.org/stream/vermivmterrestri01mle#page/n29/mode/1up

Original classification: Genus of Valvatidae.

Type species: Valvata cristata Müller, 1774 by subsequent monotypy by Müller (1774: 198).

Remarks: Placed on the Official List by Opinion 335, 1955, Opinions and Declarations rendered by the ICZN, 10(2): 50, 51. Senior objective synonym of *Valvearius* De Duméril, 1805, of *Planella* Schlüter, 1838, of *Planorbiana* Paladilhe, 1866, and of *Planorbitina* De Betta, 1870.

#### Valvatinella De Betta, 1870

Original source: De Betta 1870: 127.

Original classification: Subgenus of Valvata.

Type species: Nerita piscinalis Müller, 1774.

Remarks: An objective junior synonym of *Piscinalia* Paladilhe, 1866 and *Cincinna* Mörch, 1864 with the same type species.

#### Valvearius Duméril, 1805

Original source: Duméril 1805: 164–165.

Original classification: Genus of Valvatidae (erroneously cited as "Valvearius Müller")

Type species: Valvata cristata Müller, 1774 by subsequent monotypy by Froriep (1806: 165).

Remarks: 1805 is the correct year of publication as shown by Gregory (2010) and Bour (2010). A German translation of Duméril's work was authored by Froiep (1806: "Duméril's analytische Zoologie"), but the original description by Duméril (without involvement of Froriep) was in 1805.

An objective junior synonym of Valvata Müller, 1773 with the same type species.

"Valvulata" mentioned in Bowler-Kelly (1928: 454), also Hémery (1956: 426). Misspelling of Valvata Müller, 1773.

"Volvata" mentioned in Berge (1847: pp. 17, 20, 26).

A repeated and constant misspelling of Valvata Müller, 1773.

## Part II: (Infra-) Specific names described in Valvatidae

#### General remarks

All taxa (species, subspecies, named varieties) are listed alphabetically here in their original version (only spelling corrected according to ICZN rules) regardless of applicability, current taxonomic status and synonyms. Strong et al. (2008) considered 71 valid extant species worldwide, the Worldwide Mollusc Species Data Base (WMSDB: www. bagniliggia.it/WMSD/) by Bagni Liggia currently (last update: 28th April 2013) lists 55 extant taxa (species, subspecies, and named varieties), whereas the present search has revealed more than 210 extant valvatid taxon names. Accordingly the synonymy rate is close to 1:3, i.e. an average of 3 names for each species. In addition, about 40 nominal *Valvata* species are currently assigned to other familes and more than 100 other taxon names exist, which are solely based on various types of error.

I also add available data sources (types, on radula, SEM of protoconch, anatomy, etc.), which may be useful for future species delineation.

As a historical curiosity, certain shells of trichopteran insects (genus *Hydropsyche*) were considered to be *Valvata* species by early authors (e.g. *V. agglutinans, V. arenifera, V. crispata*).

Most of the erroneously classified nominal valvatids belong to the Hydrobiidae with often very similar, so—called "valvatiform" teleoconchs. Protoconch morphology is quite different between the two families, however, and the valvatid protoconch with longitudinal riffles is very typical (Binder 1967b; Hadžišce et al. 1976; Falniowsky 1989, etc....). This makes also the classification of many fossil nominal *Valvata* species doubtful, and SEM-studies of the protoconch are necessary to clear up doubtful cases (e.g. Harzhauser and Kowalke 2002; Bandel 2010).

Several species of nominal *Valvata* species have been transferred to the family Planorbidae (Panpulmonata, Hygrophila). The single nominal extant *Valvata* from the southern hemisphere, *Valvata pedderi*, has been now placed in the euthyneuran, panpulmonate Glacidorbidae with Gondwana distribution, thus making at least the extant Valvatidae mostly a taxon nearly exclusively found only in the northern hemisphere.

Considering the many non-valvatids (mostly hydrobiids) among the formal descriptions of extant "Valvatidae", it is more than likely that this is also the case among the fossil species, since the diagnostic fine-structure of the protoconch has only been rarly studied by SEM (e.g. by Harzhauser and Kowalke 2002; Harzhauser et al. 2002; Harzhauser and Binder 2004; Bandel 2010). The stratigraphy for European Tertiary sources follows Harzhauser and Mandic (2008).

Throughout the decades a high number of valvatid taxon names in the literature or in the internet have been created by misspellings, confusions or other errors. Previously, these errors were mostly due to simple errors of authors or publishers, whereas in more recent times the electronic versions and copies add to the problem: There is no doubt that electronic libraries such as the Biodiversity Heritage Library www.biodiversitylibrary.org/, Gallica http://gallica.bnf.fr/, the Digitizing Center in Göttingen http:// gdz.sub.uni-goettingen.de/ or DigiLit in Linz www.landesmuseum.at/datenbanken/digilit/ are of substantial value for current taxonomic research. Indeed, the current study could not be conducted in a reasonable time—frame without the help of these resources. However, the automatic text recognition software used by some websites provides a new source of misspellings and errors, in particular, if old papers or books in Gothic typescript or in poor print condition are used. Many of these mistakes were found in the Global Name Index (GNI) or in the Index of Organismic Names (ION), some have also been copied by the Global Biodiversity Information Facility (GBIF) or by the World Mollusc Species Data Base (WMSDB). In the following catalog such names are listed and the most probable explanation is provided, obvious errors have not been listed herein. The most impressive example probably is "Valvata ouscubakus Nykk., 1895" for Valvata piscinalis (Müller, 1774) attributed at http://content.lib.washington.edu/ to fig. 66 for Cooke (1895). I fully agree with the warnings of http://www.wikipeetia.org/Valvata, yet there is little doubt that the following list is not complete and will grow in the future. I will be grateful for explanations of any names with currently unknown source.

+ Valvata (Cincinna) abavia Huckriede, 1967

Original source: Huckriede 1967: 165, pl. 23: figs 1-14, pl. 24: fig. 6.

Type horizon: Upper Jurassic, Lower Kimmeridge.

Type locality: Hannover-Linder, Lindener Berg, Germany.

Valvata (Cincinna) sorensis var. abbreviata: Lindholm, 1909

Original source: Lindholm 1909: 72-73, pl. 1: figs 66-67.

Type locality: Lake Baikal, Prorwinskji Ssor, Russia.

Remarks: In the original description Lindholm misspelled the name as *Valvata* (*Cincinna*) ssorensis var. abbreviata. The latter misspelling has been often repeated in particular by Russian authors.

+ Valvata abdita Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 54-56.

Type horizon: Lower-Middle Miocene, Burdigalian-Langhian.

Type locality: Lower-Middle Miocene, Burdigalian-Langhian; Dugoselo, Croatia.

+ Valvata (Aphanotylus) aberrans Bukowski, 1895

Original source: Bukowski 1895: 24, 33-35, 63, pl. 9: figs 1-2.

Type horizon: Middle Pliocene.

Type locality: near Monastery Skhiádi, Rhodus Island, Greece. Remarks: Lectotype figured by Willmann (1981: 75, fig. 23B).

## Valvata piscinalis acuminata Jeffreys, 1862

Original source: Jeffreys 1862, Vol. 1: 73 (n383 of digitized volume at archive.org). Type locality: Avon River, Bristol, England and North of Ireland.

+ Valvata adeorboides Fuchs, 1870

Original source: Fuchs 1870a: 347, pl. 17: figs 5-7.

Type horizon: Upper Miocene, Pannonian (Transdanubian). Type locality: Rădmănești, near Lugos in Banat, Romania.

+ Valvata aegaea in Neumayr (1880: 284) (nomen nudum with locality).

Horizon: Pliocene-Pleistocene. Locality: Kos Island, Greece.

Valvata aegyptiaca Innes, 1884

Original source: Innes 1884: 350.

Type localities: "Canaux d'Alexandrie et lac Mariout; lac du jardin khédivial à Ghizeh près de Cairo; bords du lac Moeris, au Fayoun; rives du lac Timsah et marais près de Ramses", all Egypt.

Remarks: Innes (1884: 350) refers to "Bourguignat, Spec. Moll. n°. 195, 1878". However, as outlined by Connolly (1934), the latter works was never published.

"Valvata aequanica Locard, 1883" and "Valvata aequanica Locard, 1889" mentioned in Settepassi and Verdel (1965: 380).

Misspelling of + Valvata sequanica Locard, 1883.

Valvata agglutinans Tassinari, 1858 (non Lechmere Guppy, 1864)

Original source: Tassarini 1858: 2.

Type locality: Italy.

Remarks: This is the larval shell of a **trichopteran insect** (genus *Helicopsyche*) (see Bourguignat 1859: 545, Hagen 1864: 130, Bland 1865; Westerlund 1879).

Valvata agglutinans Lechmere Guppy, 1864 (not Tassarini, 1858)

Original source: Lechmere Guppy 1864: 245.

Type locality: Northern part of Island Trinidad.

Remarks: A junior homonym of *Valvata agglutinans* Tassarini, 1858. Also *Valvata agglutinans* Lechmere Guppy, 1864 is considered a synonym under the **trichopteran** *Helicopsyche maculisternum* Botosaneanu in Botosaneanu and Alkins-Koo 1993 (Johanson 2002: 59).

"Valvata aleina Westerlund, 1877" (GNI)

Misspelling of Valvata aliena Westerlund, 1877.

Valvata aliena Westerlund, 1877

Original source: Westerlund 1877: 63, pl. 1: fig. 15 (fide Westerlund 1886: 136, the original plate lacks a legend).

Type locality: Nizhnij Inbatsk, Yenisej region, central Siberia, Russia ("Jenissei, Nischnij Inbatsk (lat. 63° 50')").

Lectotype designated by Starobogatov and Streletzkaya (1967) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg, No. 8 in systematic catalogue under the name. Paralectotypes in Natural Museum Göteborg, No. 4664 (2 specimens) and Swedish Museum of Natural History, No. 14:89 (2 specimens) (see Vinarski et al. 2013b).

## Valvata naticina f. alligans Lindholm, 1927

Original source: Lindholm 1927: 22–23.

Type locality: Weichsel river near Plock, Poland.

Holotype figured by Sitnikova et al. (1986) and Anistratenko and Anistratenko (2001: 133, fig. 97), deposited at Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

#### + Valvata almerai Almera, 1894

Original source: Almera 1894: 187, pl. 5: fig. 25 (attributed to Brusina, but ICZN Art. 50.1.1 is not satisfied). Expressively referred to *Valvata almerae* [sic] in Almera et al. (1892: 45) (nomen nudum with same locality).

Type horizon: Middle Pliocene.

Type locality: Papiol, province Barcelona, Spain.

## Valvata alpestris Küster, 1853

Original source: Küster 1852–1853: 86, pl. 14: fig. 7, 8. (for publication years see Welter-Schultes 1999: 170).

Type locality: "in kleinen Seen an der Quelle der Giessbaches unweit des Faulhorns bei Grindelwald in der Schweiz" [in small lakes close to the fontain of Giessbach near the Faulhorn at Grindelwald in Switzerland] (Küster 1853: 87), Switzerland.

Types are figured by Boeters and Falkner (2002: pl. 15: figs 8-10).

Remarks: Often seen as subspecies of *Valvata piscinalis* (Müller, 1774), but Glöer and Zettler (2005: p. 15) consider this a species proper: " *V. alpestris* unterscheidet sich deutlich von *V. piscinalis*, so dass wir von einer eigenständigen Art ausgehen, auch wenn der Artstatus noch nicht eindeutig geklärt ist." [*V. alpestris* differs significantly from *V. piscinalis* so that we accept it is a species proper, although the species status is not yet cleared up unequivocally].

Radula and anatomy were described by Starmühlner (1952).

#### + Valvata alta Deshayes, 1862

Original source: Deshayes 1861–1863, Vol. 2: 524, pl. 36: figs 3–5.

Type horizon: Tertiary lignites.

Type locality: Sainceny, Bassin de Paris, France.

+ Valvata (Cincinna) altaica Popova & Starobogatov, 1981 (in Popova 1981)

Original source: Popova 1981: 18, pl. 5: figs 1–2.

Type horizon: Neogene.

Type locality: Chuisk Basin (Irkutsk Region) and Altai Mountains, Russia.

Remarks: "Valvata (Cincinna) cf. altaica Popova & Starobogatof 1981" is figured by Zhu X–G (1985: 673, pl. 1: figs 1–6).

## + Liratina altispiralis Yü, 1982

Original source: Yü 1982: 262, pl. 3: figs 5–7 (not seen; Zoological Record 1982(A2): #4208).

Type horizon: Cretaceous.

Type locality: Xizang, China.

+ Pentagoniostoma altispiratum Branson, 1935

Original source: Branson 1935: 520–521, pl. 57: figs 1–3.

Type horizon: Jurassic, Morrison Formation.

Type locality: 3 miles south of Mayoworth, Wyoming, USA.

Valvata ambigua Westerlund, 1873 (under heading of subgenus Tropidina)

Original source: Westerlund 1873: 439.

Type locality: "Sverige vid Göteborg" [Sweden near Göteborg] (see Vinarski et al. 2013a).

Types: Naturalhistoriska Museet Göteborg, #7242 (for identification see Vinarski et al. 2013a, b).

Remarks: European authors mostly considered this taxon as a synonym to *Valvata piscinalis* (Müller, 1774). However, recently Glöer and Diercking (2010: 79) and Vinarski et al. (2013a) strongly argued for genuine species status because of the lower shell, wider umbilicus and differing ecology, whereas Welter-Schultes (2012a: 44) still considered synonymy with *Valvata piscinalis*.

# "Valvata ambiqua" (GNI)

Misspelling of Valvata ambigua Westerlund, 1873.

Cincinna (Sibirovalvata) amurensis Moskvicheva, 1985 (in Starobogatov and Zatravkin 1985)

Original source: Starobogatov and Zatravkin 1985: 1156: fig. 1 (shell).

Type locality: Kutumanda River (Amur basin), Russia.

Holotype: According to Kantor et al. (2011: 65) in Zoological Institut of the Russian Academy of Sciences, St. Petersburg. Nr. 1 in systematic catalogue under the name.

Valvata macrostoma var. anapensis Westerlund, 1883

Original source: Westerlund 1883: 169 (cited as "Valvata macrostoma var. anapensis Cafici), but ICZN Art. 50.1.1 is not satisfied.

Type locality: river Anapo, Sicily, Italy.

+ Valvata anconae De Stefani, 1877

Original source: De Stefani 1877: 305, pl. 18 (2): fig. 5.

Type horizon: Pliocene.

Type locality: Arno Valley, near Montecarlo, Italy.

Valvata andreaei Menzel, 1904

Original source: Menzel 1904b: 96.

Type locality: Diluvial (interglacial) freshwater sediments of Wallensen south of Hannover and in older alluvial calcareous tuff of Alfeld and er Leine, Niedersachsen, Germany. Types not traced.

Remarks: Replacement name for *Valvata* (*Cincinna*) *andreana* Menzel, 1904 by the author himself. *Valvata andreaei* is also (solely) used by Menzel (1904c: 286, pl. 14: figs 1–10, 15–24, 26, 29–31, 35–36, 39), recently also by Vinarski et al. (2008: 177).

+ Valvata (Cincinna) andreana Menzel, 1904

Original source: Menzel 1904a: 77 with textfigure.

Type horizon: Diluvial (interglacial) freshwater sediments.

Type locality: Wallensen south of Hannover and in older alluvial calcareous tuff of Alfeld and er Leine, Niedersachsen, Germany.

Remarks: Replaced by Menzel (1904b: 96) himself to *Valvata andreaei* Menzel, 1904 in the same issue of the journal. *Valvata andreaei* is also (solely) used by Menzel (1904c: 286, pl. 14: figs 1–10, 15–24, 26, 29–31, 35–36, 39), recently also by Vinarski et al. (2008: 177).

## "Valvata andrezowski" (GNI, GBIF).

According to Dr. Gary Rosenberg from the Academy of Natural Sciences of Drexel University (Philadelphia), the digitized label of a single sample says "Valvata andrezowski Jelsch"; the back of the label says "Kiew". There is also a penciled note "These 2 spp. mixed by breakage of bottles", the second species being Valvata spirorbis, for which there is also a label. There are three specimens in the lot; one of them is too large to be V. spirorbis (= cristata). The larger specimen is similar to Valvata naticina. The lot came from the C. M. Wheatley Collection deposited by the University of Pennsylvania. "Jelsch" means "Jelski", who published Valvata menkeana [see there]. Perhaps Jelski distributed specimens under the manuscript name "andrezowski" and then decided to give it a different name.

+ Amplovalvata suturalis anjipingensis Yü, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 149, figs?? (not seen, Zool. Rec. 117 / 1980(A2): #3883).

Type horizon: Mesozoic.

Type locality: Zhejiang, Southern Anhui, China.

Valvata piscinalis annandalei Preston, 1916

Original source: Preston 1916: 162, pl. 9: figs 5, 5a, 5b.

Type locality: Lake Biwa, Japan.

#### Valvata annelata Menke, 1845

Original source: Menke 1845: 127.

Type locality: Swamp (paludosis) at the basis of Mount Sinai, Egypt.

#### + Valvata anomala Moore, 1867

Original source: Moore 1867c, 23: 556, pl. 15: figs 7–9.

Type horizon: Lower Jurassic.

Type locality: Charterhouse Mine, South Wales, U.K.

## "Valvata antigua" (GNI).

Misspelling of Valvata antiqua Morris, 1838.

## Valvata antiqua Morris, 1838

Original source: Morris 1838: 544 (with reference to the figure by Sowerby (1838: 547, figure 26).

Type locality: Grays in the Thames valley [from the publication titles], England.

Remarks: Mostly considered as an ecomorph of *Valvata piscinalis* (Müller, 1774), but Russian authors (e.g. Anistratenko and Anistratenko 2001: 141; Starobogatov et al. 2004) believe that *Cincinna antiqua* sensu Anistratenko, 1998 is probably a separate species.

## + Amplovalvata antiqua Pan, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 148, figs 21–24 (not seen; Zool. Rec. 1980(A2): #3883). Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=36286 Type horizon: Middle Jurassic.

Type locality: Zhejiang, Southern Anhui, China.

Remarks: Cited as + *Amplovalvata antiqua* "sp.nov." Pan in Guo et al. (1982: 32–33, pl. 12: figs 30–32). However, according to Zhu (1994: 94) both namings refer to the same specimens.

## + Costovalvata antiqua Zhu, 1994

Original source: Zhu 1994: 96-97 (Chinese) /103-104 (English), pl. 4: figs 1-7.

Type horizon: Middle Jurassic, Toutunhe Formation.

Type locality: Ziniquanzi, Janggar Basin, Northern Xinjiang, China.

# Valvata antiquilina Mozley, 1934

Original source: Mozley 1934: 1-2, pl. 1: fig. 4.

Type locality: Lake Khomotenoye, Aj-Bulat drainage basin, Siberia, approximately 370 km southeast of Omsk (= Khomutinoe Lake, Burla Lake system, Altay).

Holotype: U.S. National Museum #469212.

Remarks: The holotype was designated in the original publication as "type". The lot in the type collection of USNM with the catalogue number 469212 contains a single specimen, which matches the original illustration and measurements. The specimen is labeled as syntype on the later printed label.

"Valvata anvandalei" (GNI).

Misspelling of Valvata piscinalis annandalei Preston, 1916.

+ Valvata aphanotylopsis Brusina, 1902

Original source: Brusina 1902: pl. 14: figs 18-21.

Type horizon: Lower Miocene, Pontium.

Type locality: Begalijica, Serbia.

+ Valvata (Cincinna) applanata Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 30, pl. 3: fig. 22-28.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

+ Planorbis arcelini Bourguignat, 1870 (in Ferry 1870)

Original source: Appendice by Adrien Arcelin in Ferry 1870: 109. Name and entire description were attributed by Arcelin to Bourguignat in the original source, this meets the conditions of ICZN Art. 50.1.1 for Bourguignat's authorship.

Type horizon: Pliocene ("Marnes bleues").

Type locality: Berges de la Saóne, France.

Remarks: cited as *Valvata arcelini* in Locard (1881: 181) and in Bourguignat (1891: 30).

"Valvata arenaria" (GNI, GBIF)

Misspelling of Valvata arenifera Lea, 1834.

Valvata arenifera Lea, 1834

Original source: Lea 1834: 104, pl. 15: figs 36a-b.

Type locality: Cumberland river near Nashville, Tennessee, U.S.A.

Remarks: the larval shell of an **trichopteran insect** (*Helicopsyche* resp. *Phryganea*) (see Bourguignat 1859, Hagen 1864: 129, Bland 1865, Westerlund 1879). Considered a synonym under *Helicopsyche borealis* (Hagen, 1861) by Johanson (2002: 32), but *arenifera* Lea, 1834 has priority.

"Valvata ausonia" (GNI, GBIF/SysTax).

Possibly an erroneous spelling of *Omalogyra ausonia* Palazzi, 1988 (similar shell as *Valvata cristata*), since GBIF/SysTax mentioned "Atlantic Ocean, Mediterranean Sea, Italy" as locality. *Omalogyra ausonia* has been transferred to *Palazzia* (Archaeogastropoda, incertae sedis) by Warén (1991: 75).

+ Valvata (Cincinna) austrina Pan, 1977

Original source: Pan 1977: 117, pl. 5: fig. 21.

Type horizon: ?? (whole text in Chinese).

Type locality: Yunnan, China.

+ Valvata avilianensis Pollonera, 1888

Original source: Pollonera 1888b: 50, pl. 1: figs 16–18.

Type horizon: Post-Pliocene.

Type locality: Lago di Aviliana, Italy.

Valvata baicalensis Gerstfeldt, 1859

Original source: Gerstfeldt 1859: 514–515 (in issue of journal, 10–11 in reprint): fig. 25a,b,c.

Type locality: Lake Baikal, Russia.

Lectotype esignated by Sitnikova et al. (1983) and deposited at at Zoological Institut of the Russian Academy of Sciences, St. Petersburg, Nr. 104.

Remarks: (1) Genital details depicted by Sitnikova (1983: fig. 1/6).

- (2) Ostrovskaya et al. (1996, 2004) showed that the species is at least partly polyploid.
- (3) Live photos (as "Megalovalvata baicalensis Gerstf.") at: http://www.geol.irk.ru/baikal/rep\_2008/pdf/baikal2008\_apx5.pdf (Fig. 13) and: www.underwaterphotography.com/Photo-Contest/underwater-photo.aspx?ID=74736
  - (4) Spawn data at: http://userpage.fu-berlin.de/~rpeter/deutsch/repro/ei\_valva.html

"Megalovalvata baikalensis Gerstfeldt, 1859" (WMSDB).

http://www.bagniliggia.it/WMSD/HtmSpecies/2280450269.htm

Misspelling of Valvata baicalensis Gerstfeldt, 1859.

Valvata tricarinata bakeri Fluck, 1932

Original source: Fluck 1932: 20.

Type locality: Oneida Lake, New York, USA.

Holotype: Academy of Natural Sciences of Drexel University, Philadelphia (ANSP) #169016.

Remarks: Probably one of the many lake-specific forms of Valvata tricarinata.

+ Valvata balatonica Rolle, 1861 (?non Servain, 1881)

Original source: Rolle 1861: 209, pl. 1: fig. 5.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany, Lake Balaton, Hungary.

Remarks: (1) It is unclear, whether *Valvata balatonica* in Servain (1881: 94–95) refers to the same species: Type localities of both authors are very close, but Servain (1881) did not mention Rolle's description and provided a full diagnosis.

(2) Based on SEM of the protoconch Bandel (2010: 105, pl. 9: figs 111–114) designated *Valvalta balatonica* Rolle, 1861 as type species of *Jekeliella* (**Hydrobiidae**).

Valvata balatonica Servain, 1881 (?non Rolle, 1861)

Original source: Servain 1881: 94.

Type horizon: Collected from detritus, thus possibly (sub)fossil.

Type Locality: "entre les bains de Füred et la presqu'île de Tihany", Lake Balaton, Hungary.

Remarks: It is unclear, whether *Valvata balatonica* Rolle, 1861 refers to the same species: Type localities of both authors are very close, but Servain (1881) did not mention Rolle's description and provided a full diagnosis.

## + Pseudoamnicola balizacensis Degrange-Touzin, 1892

Original source: Degrange-Touzin 1892: 189, pl. 5: fig. 8, 8a-d. Figured as *Valvata balizacensis* by Cossmann (1921: pl. 4), described and figured as *Valvata* (*Cincinna*) balizacensis (Degrange-Touzin) by Wenz (1936: 235-236, textfig. 4).

Type horizon: Miocene.

Type locality: Calcarie blanc de l'Agenais, à Balizac, France.

#### + Valvata balteata Brusina, 1878

Original source: Brusina 1878: 352. Figured by Stefanescu (1896: 125, pl. 10: figs 137–138) and Brusina (1897: 25, pl. 13: figs 28–31).

Type horizon: Pliocene-Pleistocene, Romanian.

Type locality: Čaplja, Gromačnik, Slavonia, Croatia.

#### + Valvata banatica Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 50–53.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Rădmănești, Romania.

# + *Liratina basicarinata* Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 32, pl. 4, figs 15–17.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

#### Valvata tricarinata var. basalis Vanatta, 1915

Original source: Vanatta 1915: 105: figs 3-4.

Type locality: Hudson River, NY, USA.

## Valvata bathybia Dybowski, 1886

Original source: W. Dybowski 1886: 119–120, pl. 4: figs 2a–c (shell), 4a–b (radula).

Type locality: Kultuk (southern Lake Baikal) (restricted in Sitnikova et al. 2004 by designation of a lectotype, stored at Zoological Institut of the Russian Academy of Sciences), Russia.

Lectotype designated by Sitnikova et al. (2004) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg.

Remarks: SEM photos of shell, protoconch, and radula are depicted by Röpsdorf and Riedel (2004: fig. 7J–M).

+ Tropidina bellireticulata Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 33, pl. 4: figs 4–5, pl. 31, fig. 5.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

"Valvata beltrami Contreras-Arquieta, 1993" (WMSDB).

Misspelling of *Valvata beltrani* Contreras-Arquieta, 1993 at page 194 at www.flm-nh.ufl.edu/malacology/mexico-central\_america\_snail\_checklist/part1.htm

Valvata beltrani Contreras-Arquieta, 1993

Original source: Contreras-Arquieta 1993: 1, figs 1A–F (shell), 2A–C (SEM of protoconch).

Type locality: Charco Azul, San Juan de Aviles, Aramberri, Nuevo León, México.

Holotype: U.S. National Museum #860587

+ Valvata (Cincinna) benoisti Cossmann, 1899

Original source: Cossmann 1899b: 142, textfig. 5.

Type horizon: Jurassic – Bathonien.

Type locality: Département de l'Indre, France.

Remarks: Considered as *Cryptonerita benoisti* (Cossmann, 1899) (**Neritidae**) by Fischer (1964: 45, textfigs 17a–c, 18, 19; 65).

"Valvata piscinaloides var. berthoni" mentioned in Fontannes (1883: 441) (nomen nudum with locality)

Locality: Middle Pliocene; Saint-Laurent-de-Arbres, Département Gard, France.

Remarks: Cited by Durand (1913: 348) and Wenz (1928b: 2446), both without diagnoses or figure.

"Valvata (Cincinna) besançoni de Laub. & Carez" mentioned in Cossmann and Pissarro (1910–1913: legend of pl. 13, figs 84–86).

Misspelled for + Valvata bezanconi Laubrière & Carez, 1880.

+ Valvata beysehirensis Glöer & Girod, 2013

Original source: Glöer and Girod 2013: 26, figs 4-6.

Type horizon: Pleistocene.

Type locality: A hillock to the west of the national road D695, at the latitude of Çiftlikköy, just south of the turning for this village (37°43'58.38"N, 31°42'08.76"E).

"Valvata (Cincinna) bezancani Laubriere & Carez" in Yu (1965: 32).

Misspelling of + Valvata bezanconi Laubrière & Carez, 1880.

+ Valvata bezanconi Laubrière & Carez, 1880

Original source: Laubrière and Carez 1880: 405–406, pl. 15: figs 15–17.

Type horizon: Upper Pliocene.

Type locality: Brasles near Château-Thierry, Département de Aisne, France.

#### Valvata bicarinata Lea, 1841 (non Willmann, 1981)

Original source: Lea 1841: 83 (vernacular name: "two-ridge valvata").

Type locality: Schuylkill River, PA, West side, below Permanent Bridge, USA.

Holotype: U.S. National Museum #121098.

+ Valvata heidemariae bicarinata Willmann, 1981 (non Valvata bicarinata Lea, 1841)

Original source: Willmann 1981: 158–159, textfig. 56D–F.

Type horizon: Lower Pleistocene, Middle Iraki-Formation.

Type locality: Vokasia-Tal, Kos, Greece.

Remarks: A junior homonym of Valvata bicarinata Lea, 1841.

+ Valvata bicincta Fuchs, 1870 (non Whiteaves, 1885)

Original source: Fuchs 1870b: 535, pl. 21: figs 7–9.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: Bandel (2010: 103–104, pl. 7: figs 82–85) designated this species as type species of *Muellerpalia* Bandel, 2010 (**Hydrobiidae**).

+ Valvata bicincta Whiteaves, 1885 (non Fuchs, 1870)

Original source: Whiteaves 1885: 25, pl. 3: figs 3, 8, 8a,b.

Type horizon: Cretaceous.

Type locality: mouth of the Blind Man River, North-west Territory, Canada.

Remarks: A junior homonym of Valvata bicincta Fuchs, 1870.

+ Valvata biformis Sinzov, 1876

Original source: Sinzov 1876: 2.

Type horizon: Upper Miocene.

Type locality: Novorossian, Ukraine.

Remarks: Figured by Sinzov (1877: 68, pl. 5, figs 11–17) and Gozhik (2007: 76, pl. 67: figs 4–6 as *Cincinna biformis*).

+ Valvata (Tropidina) bifrons Neumayr, 1875

Original source: Herbich and Neumayr 1875: 426 (in issue of journal, page 26 in reprint), pl. 17: fig. 3.

Type horizon: Lower Pliocene.

Type locality: Dacian/Lower Romanian; Vârghiş (= Vargyas), Siebenbürgen (Transsilvania), Romania.

## "Valvata bivarinata" at www.discoverlife.org

Misspelling of Valvata bicarinata I. Lea, 1841.

#### Valvata (Cincinna) biwaensis Preston, 1916

Original source: Preston 1916: 161–162, pl. 9: fig. 4, 4a.

Type locality: Lake Biwa, Japan.

#### Valvata bocconi Calcara, 1842

Original source: Calcara 1842: 32. Cited as "Calcara in litt." and figured in Küster (1852–1853: 90–91. Pl. 14: figs 16–19).

Type locality: Pantano di Mondello, region of Termini, Sicilia, Italy.

## + Valvata (Tropidina) bojanovski Pavlović, 1932

Original source: Pavlović 1932: 245/250, pl. 1: figs 17-19.

Type horizon: Pliocene-Pleistocene, Metohija Series.

Type locality: Topličane ("blue marne Levantines near Topelić"), Metohija basin, Kosovo.

Remarks: Miloshevich (1984) regards this species a synonym of *Valvata kochi* Pavlović, 1932.

#### + Valvata bonelliana Pollonera, 1888

Original source: Pollonera 1888b: 50, pl. 1: figs 13–15.

Type horizon: Post-Pliocene.

Type locality: Contorno di Torino, Italy.

#### Valvata borealis Milachevich, 1881

Original source: Milachevich 1881: 236 (page 22 in reprint).

Type locality: near Moscow, Russia.

Remarks: Kantor et al. (2011: 67) considered the name a synonym of *Cincinna depressa* (Pfeiffer, 1821) resp. *Valvata piscinalis* (Müller, 1774).

#### + Valvata bouei Pavlović, 1903

Original source: Pavlović 1903: 186, pl. 6: figs 18–20. Also figured by Miloshevich (1984: pl. 1: figs 18–20).

Type horizon: Pliocene-Pleistocene, Metohija Series.

Type locality: Orahovac region, Metohija basin, Kosovo.

Remarks: + *Valvata bouei* Pavlović 1911" is listed in GNI und ION, the species is indeed mentioned by Pavlović (1911: 600), but without description. Its introduction in 1903 obviously was overlooked.

#### + Valvata bourdoti Cossmann, 1899

Original source: Cossmann 1899a: 349 (in issue of journal, 43 in reprint), textfig. 4.

Type horizon: Upper Eocene.

Type locality: Bois-Gouët, Lower Loire, Bretagne, France.

Valvata bourguignati Letourneux, 1869

Original source: Letourneux 1869: 197 (issue of journal), resp. 37 (in reprint).

Type locality: "Fontaine, prés du Moulin-Gachet (commune de Pissotte)", Département de Vendée, France.

Remarks: (1) Germain (1931: 675) stated synonymy to *Valvata globulina* Paladilhe, 1866, now under *Neohoratia* Schütt, 1961 (**Hydrobiidae**). (2) Bodon et al. (2001: 175): *Islamia globulina* (**Hydrobiidae**). (3) According to Vimpère (2003) synonymous to *Islamia moquiniana* (Dupuy 1851) (**Hydrobiidae**). (4) Falkner and Boeters (2003: 21) designated a lectotype and considered the species as *Islamia bourguignati* (Letourneux, 1869).

## + Valvata bouryi Cossmann, 1888

Original source: Cossmann 1888: 209, pl. 8: figs 10–12. Also figured by Cossmann and Pissarro (1910–13, pl. 13: figs 84–87).

Type horizon: Upper Eocene.

Type locality: Neauphlette, west of Paris, France.

#### Valvata branchiata Gruithuisen, 1821

Original source: Gruithuisen 1821: 437, pl. 38: figs 1–15.

Type locality: not provided in the original source, but presumably near München, Germany, where the author lived.

Remarks: Menke (1845: 125) considered the taxon as a synonym of *Valvata cristata* Müller, 1774.

#### Valvata (Cincinna) brandti Westerlund, 1897

Original source: Westerlund 1897b: 129.

Type localities: "See Goktscha, Umgebung von Lagodechi" [Lake Goktscha, surrounding of Lagodechi]; both Kaukasus, Georgia.

Remarks: Considered a synonym of *Caspicyclotus sierversi* (Pfeiffer, 1771) (**Cyclophoridae**) by Kantor et al. (2011).

## Valvata (Cincinna) aliena var. brevicula Kozhov, 1936

Original source: Kozhov 1936: 18, pl. 1: fig. 30.

Type locality: Bogushanskaya Inlet, Lake Baikal, Russia.

Lectotype (Sitnikova et al. 2004): Zoological Institute, Academy of Sciences, St. Petersburg, Russia.

## "Valvata brisenoi Contreras" (GNI, GBIF)

- · at Discover Life: http://www.discoverlife.org/mp/20q?search=Valvata+brisenoi
- · Cited as submitted paper "Contreras-Arquieta, A. *Valvata briseñoi* n. sp. from Aramberri, State of Sierra León, México. The Veliger (Sometido)" in Contreras-Arquieta (1993: 4), but the paper has never been published.

+ Valvata bronni Ancona, 1867 (in Cocchi 1867: ICZN Art. 50.1.1 is fully satisfied)

Original source: Cocchi 1867: 27 (page 371 of the volume in the digitized version).

Type horizon: Plio-Pleistocene.

Type locality: central Italy.

Remarks: (1) Refers to *Valvata obtusa* sensu Bronn (1831: 583 [= page 75 of the respective book chapter as stated by Ancona 1867], no. 394).

(2) Type species of Stephania Esu & Girotti, 1975: 222 (?Ampullariidae).

"Amnicola brownie" mentioned in Carpenter (1872: Central Falls Weekly Visitor end of March 1872 [not seen])

Remarks: it is questionable, whether or not this newspaper is published work in the sense of ICZN Art. 8.1.1. If not, than *Valvata brownii* Carpenter, 1889 would be the original source of the name.

## Valvata brownii Carpenter, 1889

Original source: Carpenter 1889: 67 (original description of 1872 copied).

Type locality: Cunliff's Pond, at Elmville, south of Providence, Rhode Island, USA. Remarks: Walker (1918: 147) referred the species to *Lyogyrus* Gill, 1863. Currently

again considered as *Amnicola brownii* Carpenter, 1872 (**Hydrobiidae**) (GNI).

+ Cincinna (Cincinna) bugense [sic: should be bugensis, since Cincinna is feminine] Gozhik, 2007

Original source: Gozhik 2007: 76, pl. 66: figs 6-9.

Type horizon: Upper Miocene, Maeotian.

Type locality: near the town Michailowka, district Volgograd, Russia.

+ Valvata bukowskii Brusina, 1897

Original source: Brusina 1897: 25, pl. 14: figs 1-3.

Type horizon: Pliocene-Pleistocene (Dacian-Romanian).

Type locality: Bečić, Slavonia, Croatia.

Cincinna (Sibirovalvata) bureensis Starobogatov & Zatravkin, 1985

Original source: Starobogatov and Zatravkin 1985: 1158: fig. 6.

Type locality: lake on the left bank of the River Bureja, near Chekunda (old) settlement, Khabarovsk Territory, Sibiria, Russia.

Holotype: Zoological Institut, Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

+ Valvata hellenica var. cabeolensis Fontannes, 1880

Original source: Fontannes 1880: 181, pl. 1: fig. 19.

Type horizon: Lower Pliocene.

Type locality: basin du Crest, south of Valence, France.

Valvata humeralis californica Pilsbry, 1908

Original source: Pilsbry 1908: 82.

Type locality: Bear Lake, San Bernardino Mountains, California, USA.

Remarks: Hovingh (2004) assumed that all specimens of *Valvata humeralis* Say, 1829 with localities in Mexico should be classified as *Valvata californica*.

#### + Valvata calli Hanniball, 1910

Original source: Hanniball 1910: 107.

Type horizon: Marl-deposit, Upper Lahontan Quaternary.

Type locality: Summer Lake, Oregon, USA.

# Valvata callista Innes, 1884

Original source: Innes 1884: 350.

Type localities: "Marais à l'est de canal Mahmoudieh; bords du lac Moeris, au Fayoun", all Egypt.

Remarks: Innes (1884: 350) refers to "Bourguignat, Spec. Moll. n°. 196, 1878". However, as outlined by Connolly (1934), the latter works was never published.

## "Valvata cancellata" (GNI, ION)

Possibly an erroneous spelling or confusion of *Spirorbis valvata* Berger, 1859 and *Spirorbis cancellata* Fabricius, 1780 (Annelida, Polychaeta).

## + Valvata cangshanensis Pan, 1982

Original source: Pan 1982: p. ??, figs 24–27 (not seen, not listed in Zoological Record, data from the online type catalogue of Nanjing Institute).

Type horizon: Jurassic – Penglaizhen.

Type locality: Zhongjiang County, Sichuan Basin, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=53436

# + Valvata carasiensis Jekelius, 1944

Original source: Jekelius 1944: 120–121. Type horizon: Middle Miocene, Sarmat. Type locality: Soceni (Banat), Romania.

# Valvata carinata Sowerby, 1834 (non Fuchs, 1870)

Original source: Sowerby 1834: pl. 41: fig. 2.

Locus typicus: not provided.

Remarks: Concerning the publication year of Sowerby's work Petit (2006) should be considered.

# + Valvata carinata Fuchs, 1870 (not Sowerby, 1834)

Original source: Fuchs 1870b: 535, pl. 21: figs 10-12.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: According to Bandel (2010: 104, pl. 7: figs 86–89) this species should be classified as *Muellerpalia carinata* (Fuchs, 1870) (**Hydrobiidae**). A junior homonym of *Valvata carinata* Sowerby, 1834.

"Valvata caterinae" mentioned in Siodiropoulou (2003: 40-41, fig. 15).

Locality: Pliocene-Pleistocene; Ptolemaida, West-Macedonia, Greece.

Remarks: This PhD-Thesis, in which 35 species are ostendibley described, does not meet the conditions of ICZN Art. 8.1.3 and 9.9. Accordingly, the name is not available.

+ Valvata (Aphanotylus) chalinei Schlickum & Puisségur, 1978

Original source: Schlickum and Puisségur 1978: 4, pl. 1: fig. 5.

Type horizon: Tertiary.

Type locality: Montagny les Beaume, Département Côte d'Or, France.

Remarks: See also Esu (1983).

+ Valvata changzhouensis Yü, 1977 (in Yü and Wang 1977)

Original source: Yü and Wang 1977: 15, pl. 1: figs 8-12, pl. 3: figs15-18.

Type horizon: Upper Cretaceous.

Type locality: Jiangsu Province, China.

Cincinna chereshnevi Bogatov, Zatravkin & Starobogatov, 1992 (in Bogatov and Zatravkin 1992)

Original source: Bogatov and Zatravkin 1992("1990"): 35–36: fig. 8. a-b [a-v].

Type locality: southern Chukchi Peninsula, basin of Khatyrka River, Lake Egergytgyn, Russia.

Holotype: Zoological Institut, Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Cincinna chersonica Chernogorenko & Starobogatov, 1987

Original source: Chernogorenko and Starobogatov 1987: 150.

Type locality: mouth of Dnieper river into Black Sea, Ukraine.

Holotype figured by Anistratenko and Anistratenko (2001: 144, fig. 116), According to Kantor et al. (2011: 66) in Zoological Institute of Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Remarks: A much more detailed description of the species was provided by Chernogorenko (1991).

Cincinna chishimana Prozorova & Starobogatov, 1999

Original source: Prozorova and Starobogatov 1999: 54-55, figs 2B, 3.

Type locality: Iturup Island, Reidovoe Lake, 1–5 m, Russia.

Holotype: Zoological Institut, Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Remarks: According to Kantor et al. (2011: 66) a synonym to *Cincinna kizakikoensis* Fujita & Habe, 1991.

## "Valvata chohnokyi Schlosser 1906" (GNI, ION)

Misspelled and confused with + Bithynia (?) cholnokyi Schlosser, 1906.

## Valvata choristogyra Hagenmüller, 1884

Original source: Hagenmüller 1884: 215 (cited as "Valvata choristogyra (Servain)"). Type locality: River Elbe at Hamburg, Germany.

Remarks: Hagenmüller (1884) himself suspected that this is an open coiled form of *Valvata cristata* Müller, 1774. Also cited by Westerlund (1885: 143: "*V. choristogyra* (Serv.) Loc. Bull. Soc. Mal. Fr. 1884"), but could not be verified in Locard (1894), but in the directly following paper by Hagenmüller.

+ Valvata (Cincinna) costatus cinctus Taner, 1973 [should be costata cincta, since Valvata and Cincinna both are feminine]

Original source: Taner 1973: 97, pl. 4 (photos): figs 1–3, pl. 3 (drawings): figs2–2a. Type horizon: Neogene.

Type locality: Altintepe near the town of Fatsa close to the Black Sea, Turkey.

## + Valvata circinata Sandberger, 1871

Original source: Sandberger 1870–1875: pl. 18: fig. 5a–c (published 1871), described by him later at page 324 (published 1873). The name is attributed by some authors (e.g. Wenz 1928b: 2427) to Merian (1849: 34, mentioned as *Paludina circinata*, a nomen nudum), but ICZN Art. 50.1.1 is not satisfied.

Type horizon: Oligocene.

Type locality: "Kalke von Kleinkems", north of Basel, Germany.

#### + Valvata cobalcescui Brusina, 1885

Original source: Brusina 1885: 162. Figured by Stefanescu (1896: 124, pl. 10: figs 129–132); and as *Cincinna (Atropidina) cobalcescui* Stefanescu by Gozhik (2007: 80, pl. 69: figs 8–11).

Type horizon: Pliocene-Pleistocene, (Dacian-Romanian; Paludina-layers).

Type locality: Barboși (= Barboschi), Galati, Romania.

Remarks: As outlined by Brusina (1885: 162) a replacement name for *Valvata suleki-ana* sensu Cobălcescu (1883: 142, pl. 13, fig. 18), non *Valvata sulekiana* Brusina, 1874.

#### Valvata colbeaui Roffiaen, 1869

Original source: Roffiaen 1868: 81, pl. 1: fig. 1a-d. Type locality: Brienzersee near Iseltwald, Switzerland.

"Valvata colli" (GNI).

Misspelling of + Valvata calli Hanniball, 1910.

+ Valvata comes Hudleston, 1896

Original source: Hudleston 1896: 489–490, pl. 43: fig. 27, pl. 44: figs 2a-b.

Type horizon: Middle-Jurassic, Inferior Oolite; *Paludina*—beds.

Type locality: at Langton Bridge, Lincolnshire, England, U.K.

Valvata compressa Locard, 1889

Original source: Locard 1889: 38-40.

Type locality: first locality mentioned is "Poligny dans le Jura", France.

Valvata (Cincinna) confusa Westerlund, 1897 (not Valvata tricarinata var. confusa Walker, 1902)

Original source: Westerlund 1897b: 130.

Type locality: "Sibirien. Thal des Olenek" [Siberia, valley of Olenjok], Russia.

Lectotype designated by Starobogatov and Streletzkaya (1967): Zoological Institute of the Russian Academy of Science, St. Petersburg, No. 32 in systematic catalog, figured by Vinarski et al. (2013b: fig. 3A) (17 paralectotypes, No. 33). Paralectotypes (5 specimens) in Naturalhistoriska Museet Göteborg, Sweden, No. 4656. (cf. Vinarski et al. 2013b).

Remarks: Genital details are depicted by Sitnikova 1983: fig. 1–2.

Valvata tricarinata var. confusa Walker, 1902 (non Valvata (Cincinna) confusa Westerlund, 1897)

Original source: Walker 1902: 124, fig. 2.

Type locality: not provided.

Remarks: Replaced by Valvata tricarinata var. perconfusa Walker, 1917 (see there).

+ Valvata connectens Brusina, 1892

Original source: Brusina 1892: 166 (issue of journal, 54 of reprint) (footnote).

Type horizon: Upper Pliocene, Pannonian.

Type locality: Markuševec (Zagreb), Croatia.

Remarks: Replacement name for Valvata gradata Brusina (1874: 135), non Fuchs, 1870.

+ Valvata conoidalis Michaud, 1855

Original source: Michaud 1855: 49–50 (issue of journal, 17–18 in reprint), pl. 5: fig. 19.

Type horizon: Lower Pliocene, Zanclean.

Type locality: Hauterive (Drôme), France.

Remarks: Considered as *Craspedopoma conoidale* (Michaud, 1855) (**Maizaniidae**) by Locard (1887: 243) and Sandberger (1875: 726).

Valvata (Cincinna) consors Westerlund, 1886

Original source: Westerlund 1886: 136.

Type locality: Klagenfurt in Kärnten, Austria.

Nerita contorta Müller, 1774

Original source: Müller 1774: 187-188 (Nr. 374).

Type locality: Fridrichsdal, Denmark.

Types possibly in Zoological Museum Copenhagen (Kantor et al. 2011: 66).

Remarks: Glöer (2002) considered this taxon as a synonym of *Valvata piscinalis antiqua*. Anistratenko and Anistratenko (2001: 139) cited the opinion of Ya.I.Starobogatov, that *Valvata piscinalis var. fluviatilis* Colbeau, 1859 is a synonym of *Cincinna contorta*. Most European malacologists under the name *Valvata fluviatilis* identified separate species, for which Starobogatov Starobogatov in Anistratenko and Anistratenko (2001: 139) proposed a new name *Cincinna* (*Cincinna*) *falsifluviatilis* (see there).

Radula figured by Hensche (1866).

Helix contortaplicata Gmelin, 1791

Original source: Gmelin 1791: 3661 (#144) (cited as Helix contorta-plicata).

Type locality: "Galliae" (France).

Remarks: Gmelin provided a short description, a reference to Müller's (1774: 187–188) description of *Nerita contorta* (see there), and to the work of (not named) Dézallier d'Argenville of 1742 (Pl. 8: fig. 5). Synonymy with *Nerita contorta* Müller, 1774 remains unclear.

Valvata coronadoi Bourguignat, 1870

Original source: Bourguignat 1870b: 169 (in issue of journal, 51 in reprint), pl. 17 (resp. 4 in reprint): figs 5–8.

Type locality: "en los alrededores de Madrid, o, al menos, en algunos manantiales o arroyos de la provincia de Castilla La Nueva" [in Madrid's surroundings or, at least, in some springs or strans of the New Castille Province], Spain.

Types: Lectotype Museum de l'Histoire Naturelle de Geneve (MHNG, figured by Arconada and Ramos 2006: figs 76, 80, 83, 86) and paralectotypes MHNG (figured ibid. figs 77, 79, 81, 84, 87, 89).

Remarks: Now *Neohoriatia* (?) coronadoi (Hydrobiidae) see Arconada and Ramos (2006: 101) (**Hydrobiidae**).

+ Aphanotylus cossmanni Brusina, 1894

Original source: Brusina 1894: 185.

Type horizon: Upper Miocene, Upper Pannonian, horizon of *Lyrcæa* (*Melanopsis*) / *Congeria*—layers.

Type locality: Kúp, Komitat Veszprém, Western Hungary.

Valvata piscinalis var. costulata Drouët, 1867

Original source: Drouët 1867: 93.

Type locality: Ouche, France.

+ Valvata (Cincinna) costatus [sic] Taner, 1973 [should be costata, since Valvata and Cincinna both are feminine]

Original source: Taner 1973: 96, pl. 3 (photos): figs 3–6, pl. 3 (drawnings): figs1–1a.

Type horizon: Pliocene.

Type locality: Tabakalari, Tahir, Eastern Turkey.

+ Valvata craterella Russell, 1938

Original source: Russell 1938: 505, textfigs 1–3.

Type horizon: Oligocene.

Type locality: Park County, Colorado, USA.

Valvata cressidana Locard, 1889

Original source: Locard 1889: 42 (attributed to Letourneux, but ICZN Art. 50.1.1 is not met).

Type locality: Marais de Cressida, Corfu, Greece.

"Valvata crisata (Mull.)" (GNI).

Misspelling of Valvata cristata Müller, 1774.

"Valvata crispata" mentioned in Westerlund (1879: 18)

Remarks: (1) Name attributed by Westerlund to Benoit with a bibliographical reference to the un–labelled plates in "Benoit 1857: Tav. 7 Fig. 32–33", not used by Westerlund 1879 (cf. ICZN Art. 11.5.2) and probably not made available elsewhere. Also De Gregorio (1895: 185) did not provide a name for these two figures.

(2) This name refers to the shell of a **hydropsychid trichopteran** (Hexapoda: *Phryganea*) (cf. Westerlund 1879: 18).

Valvata cristata Müller, 1774

Original source: Müller 1774: 198–199.

Type locality: Fridrichsdal (NW of Copenhagen), Denmark.

Types possibly in Zoological Museum Copenhagen (Kantor et al. 2011: 73).

Remarks: (1) SEM photos of shell and radula are provided by Falniowski (1990), genital details are depicted by Sitnikova (1983: fig. 1/1), general anatomy is described by Rath (1986: 82ff), sperm ultrastructure has been described by Healy (1990), for life cycle see Myzyk (2002). (2) Live photos at: http://www.allesumdieschneck.de/html/valvata\_cristata.html

Valvata cristatella "f. Biguet" (i.e. Faure-Biguet) mentioned in Férussac and Férussac (1807: 128/129, nr. 170) (nomen nudum).

Remarks: Cited by Menke (1845: 126) as a synonym for a variety of *Valvata cristata* Müller, 1774 denoted with the letter b, but without making it available.

+ Valvata piscinalis var. crusitensis Fontannes, 1886

Original source: Fontannes 1886: 344–345, pl. 26: figs 45–46.

Type horizon: Pliocene-Pleistocene, Romanian.

Type locality: Crușeț (Crusita, valley of Amaradii), Dolj, Romania.

Remarks: figured as *Valvata* (*Cincinna*) crusitensis Fontannes by Kapan Yesilyurt and Taner (2002: 102, pl. 1: fig. 4).

Valvata cumingii Reeve, 1859

Original source: Reeve 1859(1): 171, pl. 17, fig. 88.

Type locality: England.

Remarks: Present status unknown, cf. Petit (2007: 91).

"Valvata inflata var. curta Tournouër" mentioned in Delafond and Depéret (1893: 152, pl. 9: figs 52–54)

Locality: Middle Pliocene; Saint-Amour, Département Jura, Region Franche-Comté, France.

Remarks: Delafond and Depréret (1893: 152) referred the name to specimens of the collection of Tournouër and consider these specimens from Bresse, France identical to *Valvata interposita* de Stefani, 1880.

Valvata cyclomphala Westerlund, 1889

Original source: Westerlund 1889: 1316 (diagnosis in the footnote).

Type locality: "Norvegia in Finmarkia oriental ad Koskiniavi (Flumen Pasvig)", Norway.

"Valvata (Valvata) cyclistomoides Raspail" mentioned in Wenz (1928b: 2467).

Consistent misspelling of Valvata cyclotusoides Raspail, 1909.

+ Amplovalvata cyclostoma Yen, 1952

Original source: Yen 1952: 39, pl. 6: figs 1a-f.

Type horizon: Upper Jurassic, Morrison Formation.

Type locality: Felch's Ranch, Garden Park, 9 miles north of Canon City, Fremont County, Colorado, USA.

+ Planorbis cyclostomus Brusina, 1902

Original source: Brusina 1902: pl. 3: figs 10-12.

Type horizon: Pliocene-Pleistocene, Dacian-Romanian.

Type locality: Gromačnik, Slavonia, Croatia.

Remarks: Considered as a Valvata by Wenz (1928b: 2466).

## + Valvata cyclostrema Brusina, 1892

Original source: Brusina 1892: 167–168 (in issue of journal, 55–56 in reprint).

Type horizon: Upper Miocene, Pannonian.

Type locality: Markuševec (Zagreb), Croatia.

## + Valvata cyclotusoides Raspail, 1909

Original source: Raspail 1909: 196, pl. 4: figs 21–23. Also cited and figured in Cossmann and Pissarro (1910: 10, pl. 63: figs 84–88 (3 figs)). Wenz (1928b: 2467) misspelled this as "Valvata (Valvata) cyclistomoides Raspail".

Type horizon: Middle Eocene, Upper Bartonian.

Type locality: Le Vouast near Montjavoult, north-west of Paris, Département Oise, France.

## + Valvata cyrenophila Andreae, 1884

Original source: Andreae 1884: 272, pl. 12: figs 1a-c.

Type horizon: Upper Oligocene, Chattien.

Type locality: Kolbsheim, Département Bas-Rhin, France.

## "Valvata cythropomatia Hemph." (GNI).

Probably corrupted by erroneous text recognition software for *Valvata erythropo-matia* Hauffen, 1856.

# + Cincinna dakangensis Yü, 1974

Original source: Yü 1974: 372-373, pl. 198: figs 1-3.

Type horizon: Lower Jurassic.

Type locality: Jiangyou, Sichuan Province, Southwest China.

# + Aphanotylus dakangensis Pan, 1982

Original source: Pan 1982: ??, figs 5–8 (Not seen, not in Zoological Record, data from the online type catalogue of Nanjing Institute).

Type horizon: Mesozoic.

Type locality: artesian springs, Sichuan Jiangyou Grafschaft Kang, Sichuan province, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=53439

#### + Valvata dalaziensis Zhu, 1980

Original source: Zhu 1980: 38, figs ?? (not seen; listed in Zoological Record 1980(A2): #3886).

Type horizon: Lower Cretaceous. Type locality: Northwest China.

#### Valvata sincera danielsi Walker, 1906

Original source: Walker 1906: 28, pl. 1: figs 9–10.

Type locality: Cannon Lake, Rice Co. Minnesota, USA.

## Valvata danubiana Put & Polyszcuk [sic!], 1969

Original source: Put and Polyszcuk 1969: 652, fig. 6 (b) at page 651.

Type locality: Right bank of Ochakov-mouth in the Danube delta, Ukraine.

#### + Valvata debilis Fuchs, 1870

Original source: Fuchs 1870b: 535, pl. 21: figs 1–3.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: According to Bandel (2010: 105) this species should be classified in the **Planorbidae**.

# + Valvata decollata Hislop, 1859

Original source: Hislop 1859: 171, pl. 5: figs 16a-b.

Type horizon: Tertiary.

Type locality: Tákli, Aurangabad, Maharashtra, East India.

Remarks: The valvatid nature of this taxon was doubted by Hrubesch (1965: 98).

## + Valvata deflexa Sandberger, 1863

Original source: Sandberger 1858–1863: 86, pl. 6: figs 11, 11a, 11b.

Type horizon: Lower Miocene, Littorinellenkalk.

Type locality: Kästrich in Mainz, Germany.

Remarks: Sandberger himself (1875: 493) considered this taxon as identical to *Planorbis crassilabris* Sanderberger, 1875.

Remarks: Types of Sandberger (1863) have been re–investigated by Kuster-Wendenburg (1973).

# + Amplovalvata deformis Pan, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 149, figs ?? (not seen, listed in Zoological Record 1980(A2) / 117: #3883).

Type horizon: Mesozoic.

Type locality: Zhejiang Zhuji, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=36290

## + Valvata deisteri Struckmann, 1880

Original source: Struckmann 1880: 86, pl. 2: figs 23a-c.

Type horizon: Lower Cretaceous.

Type locality: Coal-mine Egsdorf near Hannover, Germany.

# + Valvata (Cincinna) delaunayi Cossmann, 1907

Original source: Cossmann 1907: 232-233, textfig. 2.

Type horizon: Jurassic, Dogger, Bathonien. Type locality: Saint-Gaultier (Indre), France. Remarks: Judging from the figure of the shell (non-circular aperture) nearly with certainty no valvatid.

"Heterovalvata delessei" mentioned in Munier-Chalmas (1879: 33) (nomen nudum). Locality: Stratum ?; Saint Cyr, Tripoli, Libanon.

Valvata delevieleusae Hagenmüller, 1884

Original source: Hagenmüller 1884: 213–214.

Type locality: not provided, North Africa.

Remarks: Boettger (1905: 120) considered the taxon to belong to the hydrobiid genus *Daudebardiella* Boettger, 1905 because of the oblique aperture.

Valvata cristata var. delpretiana Paulucci, 1878

Original source: Paulucci 1878: 20 (name only), 51 (description).

Type locality: near Viareggio, Toscana, Italy.

Valvata (Liratina) baicalensis var. demersa Lindholm, 1909

Original source: Lindholm 1909: 79.

Type locality: Lake Baikal, "beim Uluss [type error: Fluss] Byrkin" [at river Byrkin], Russia.

Lectotype designated by Sitnikova et al. (1983) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg; Nr. 1 in systematic catalogue under the name.

Remarks: (1) SEM of radula figured by Röpstorf et al. (2003: fig. 6B).

- (2) Live photo (under "Megalovalvata demersa Ldh."): http://www.geol.irk.ru/bai-kal/rep\_2008/pdf/baikal2008\_apx5.pdf (Fig. 3).
  - (3) Spawn data: http://userpage.fu-berlin.de/~rpeter/deutsch/repro/ei\_valva.html
- + Valvata densestriata Pilsbry, 1934

Original source: Pilsbry 1934: 16.

Type horizon: Pliocene.

Type locality: 23 miles southwest of Hanford, Kettleman Hills, California, USA.

Valvata depressa Pfeiffer, 1821

Original source: Pfeiffer 1821: 100, pl. 4: fig. 33.

Type locality: "in einem schlammigen Wassergraben, unweit Hanau, bey dem Dorfe Enkheim". [in a muddy ditch not far from Hanau, at the village Enkheim - to-day a part of Bergen-Enkheim in Frankfurt/Main], Germany.

Types: not traced. Pfeiffer's collection was dispersed after his death (Dance 1986).

+ Valvata deshayesi Denainvilliers, 1875

Original source: Denainvilliers 1875: 68, pl. 3: fig. 1.

Type horizon: Lower Miocene, Aquitanian.

Type locality: Segrais near Piethiviers, Départment de Loiret, France.

Paludina dilatata Eichwald, 1830

Original source: Eichwald 1830: 219.

Valvata dilatata in Eichwald (1853: 292, pl. 10: fig. 35).

Type locality: Quaternary (!) deposits near Grodno (Hrodna), Belarus.

Lectotype designated by Starobogatov et al. (2004), figured by Anistratenko and Anistratenko (2001: 142, fig. 114), deposited in Zoological Institute of Russian Academy of Science, St. Petersburg, Nr. 1 (Kantor et al. 2011: 67) under the name.

Remarks: Russian authors (e.g. Anistratenko and Anistratenko 2001; Kantor et al. 2011: 67) regularly place this taxon in *Cincinna*.

Valvata discors Westerlund, 1886

Original source: Westerlund 1886, Part VI: 133.

Type locality: "Sweden Lake Ringsjön". According to Vinarski et al. (2013b) this is Lake Ringsjön in the province Skania (Sweden).

Syntypes (2 specimens, AN 4649) in the Naturalhistoriska Museet Göteborg, figured by Vinarski et al. (2013b: figs 3B–C) and in the Swedish Museum of Natural History (AN 14:78).

Remarks: Glöer (2002: 184, 193) regarded *Valvata discors* as a subspecies of *Valvata piscinalis* (Müller, 1774). Glöer and Zettler (2005: 15) discussed whether this taxon is a true subspecies or only a reaction form.

+ Valvata disjuncta Dollfus, 1877

Original source: Dollfus 1877: 27.

Type horizon: Upper Oligocene.

Type locality: Bessancourt (Seine-et-Oise), France.

+ Valvata (Tropidina) donghucunensis Pan, 1977

Original source: Pan 1977: 118, pl. 5: figs 19-20.

Type horizon: ?? (whole text in Chinese).

Type locality: Yunnan, China.

"Valvata (Tropidina) dongshucuanensis Pan, 1977" mentioned in Chinese online-catalogues.

Misspelling of + Valvata (Tropidina) donghucunensis Pan, 1977.

+ Valvata (Tropidina) drimensis Pavlović, 1903

Original source: Pavlović 1903: 185–186, pl. 6: fig. 21–23. Also figured by Pavlović (1911: 605, pl. 4: figs 21–23; as "nov.spec."!) and by Miloshevich (1984: pl. 1: figs 21–27).

Type horizon: Pliocene-Pleistocene, Metohija Series.

Type locality: Orahovac region, Metohija Basin, Southwest Kosovo.

+ Valvata dromica Fontannes, 1880

Original source: Fontannes 1880: 182, pl. 1: fig. 20.

Type horizon: Upper Miocene.

Type locality: bassin du Crest, Drome, France.

"Valvata piscinalis var. dujardini" mentioned in Dollfus and Dautzenberg (1886: 140) (nomen nudum)

Listed or mentioned by Lecointre (1908: 83), Dollfus (1916: 368) and by Wenz (1928b: 2445), but all without description or figure.

Locality: Middle Miocene, Faluns de la Touraine (for geography see http://www.geocaching.com/seek/cache\_details.aspx?guid=4ae1307b-f29f-4a9e-a7ef-71bc1299d-fbd); Départements d'Indre–et-Loire and Maine–et-Loire and an extension in the region of Rennes (Département d'Ille et Vilaine). France.

"Valvata ecarinata Say" (GNI).

Possibly misspelled for Valvata tricarinata Say, 1817.

"Valvata elatior" Menzel, 1904 [often cited as "V. elatior Menzel, 1900"] (Egorov 2006, Kantor et al. (2010: 73), EOL, GTI)

Error pro Valvata (Cincinna) andreana var. latior Menzel, 1904 (see there).

Valvata erythropomatia Hauffen, 1856

Original source: Hauffen 1856: 465, pl. 7: fig. 1.

Type locality: Cave of Görtschach / Goriče (i.e. (="Babja Luknja" cave), Slovenia. Remarks: Type species of *Erythropomatiana* Radoman, 1978 (see Kabat and Hershler 1993), now *Hauffenia* (**Hydrobiidae**) see Binder (1967a) and Bodon et al. (2001: 114).

+ Valvata (Tropidina) eugeniae Neumayr, 1875 (in Herbich and Neumayr 1875)

Original source: Herbich and Neumayr 1875: 426(26), pl. 17: fig. 1.

Type horizon: Lower Pliocene, Dacian / Lower Romanian (Congeria-layers).

Type locality: Vârghi (= Vargyas), Siebenbürgen (Transsilvania), Romania.

+ Valvata euomphalus Fuchs, 1877

Original source: Fuchs 1877: 38, pl. 4: figs 11-15.

Type horizon: Pleistocene, Chaudian (Günz glaciation).

Type locality: Livanates near Talanti, Greece.

Remarks: Type species of *Graecamnicola* Willmann, 1981 (**Hydrobiidae**), lectotype described and figured by Willmann (1981: 209–210, fig. 71A–C).

+ Valvata euristoma Brusina, 1902

Original source: Brusina 1902: pl. 13: fig. 43. Listed as "Valvata eurystoma [sic] Brusina"in Wenz (1928b: 2468).

Type horizon: Upper Miocene, Pannonian.

Type locality: Begaljica, Serbia.

"Valvata eurystoma" mentioned in Braun (1843: 123) (nomen nudum with locality) Locality: Tertiary; Mainzer Becken, Germany.

### + Borysthenia naticina euxinica Gozhik, 2007

Original source: Gozhik 2007: 74–75, pl. 65: figs 2–4.

Type horizon: Upper Pleistocene (Evksinsk layer).

Type locality: near Ozernoye, district Stawropol, Russia.

#### Valvata exigua Schmidt, 1856

Original source: Schmidt 1856: 160 (footnote).

Neotype: Senckenberg Museum Frankfurt #262352.

Type locality (according to the neotype designation by Schütt (1980)): Springs near Tempetal, near railway station Agia Paraskeui, Thessaloniki, Greece.

Remarks: Considered as *Horatia* (*Horatia*) exigua (Schmidt, 1857) by Schütt (1962: 164); type species of *Daphniola* Schütt, 1980 (**Hydrobiidae**), see Kabat and Hershler (1993: 20), Bodon et al. (2001: 111, 175).

#### Valvata exilis Paladilhe, 1867

Original source: Paladilhe 1867b: 50–51, pl. 3: figs 27–30.

Type locality: "dans les alluvions de Lez", Département Hérault, France.

Remarks: Type species of *Heraultia* Bodon, Manganelli & Giusti, 2001, being replaced by *Heraultiella*, see Bodon et al. (2001:175), Bodon et al. (2002: 681), Prié (2005), or Callot-Girardi and Girardi (2013) (**Hydrobiidae**).

#### Valvata eximia Servain, 1880

Original source: Servain 1880: 155.

Type locality: Badajoz, Spain.

Remarks: Cited by Nevill (1884: 16).

# "Valvata exinia Servain, 1880" in Vidal and Suarez (1985: 8)

Misspelling of Valvata eximia Servain, 1880.

#### + Valvata (Valvata) exotica Papp, 1954

Original source: Papp 1954: 24, pl. 4: figs 5a-b.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Wiesen, Eisenstadt (Sopron) Basin, Burgenland, Austria.

Remarks: Introduced for *Valvata pseudoadeorbis* Sinzow, 1880 sensu Papp (1939: 352).

#### Valvata fagoti Fagot, 1881

Original source: Fagot 1881: 141 (cited as Valvata fagoti Bourguignat).

Type locality: "Saint-Pardoult (Charente-Inférieure), France.

+ Liratina fahaniuensis Youluo, 1978 (name of author according to the type catalogue of Nanjing Institute)

Original source: Youluo 1978: 32–33, pl. 4: figs 6–8.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

## + Valvata falsani Locard, 1883

Original source: Locard 1883a: 80, pl. 3: figs 12–14. The name is referred to "Valvata? Falsani (Lithoglyphus), Tournouër, 1876, Mss. in Falsan: Introd. Faune Meximieux, p. 34" (i.e. Falsan 1875: 164), a nomen nudum. Listed as Valvata falsani Locard, 1888 (type error?) with further references by Wenz (1928b: 2457).

Type horizon: Middle Pliocene, Plaisencien.

Type locality: Pérouges, Département de Ain, France.

Remarks: Cited as "Valvata falsani (Lithoglyphus) Tournouër, 1876" in Locard (1883a: 80) with detailed description and as type species for Michaudia Locard, 1883 (page 81 and 82) (Lithoglyphidae).

Cincinna falsifluviatilis in Anistratenko and Anistratenko (2001) (nomen nudum?)

Original source: Anistratenko and Anistratenko 2001: 139–140, fig. 110 (name attributed to Starobogatov, but ICZN Art. 50.1.1 is not satisfied).

Type locality: not provided "Belgien, England, Deutschland, Russland".

Types: Not specified.

Remarks: Established as a replacement name for "Valvata fluviatilis sensu Westerlund, 1886 (non Colbeau, 1859)". Kantor et al. (2011: 67) stated that this name is erroneously attributed to 1996 by Starobogatov et al. (2004). Kantor and Sysoev (2005) overlooked the description of the species in Anistratenko and Anistratenko (2001) and thus concluded that the name is not available.

However, a "sensu" name is not an available name, and only an available name can be replaced for nomenclatural reasons (see Glossary of the Code, new replacement name, "a name established expressly to replace an already established name"). Westerlund (1886) just used Colbeau's name and misapplied it to a species that later turned out to belong to a different species, thus Westerlund (1886) did not establish a new name. Consequently there was no name for which a new replacement name could be established. If Starobogatov or Anistratenko and Anistratenko (2001) intended to do that, the act was unsuccessful and it must be looked if the name was established as a regular new name. However, types were not specified (*fide* Kantor et al. 2011: 67), thus the conditions of ICZN Art. 16.4 probably were not met (after 1999 name–bearing types must be specified in the original source). This means that the name *Cincinna falsifluviatlis* is a nomen nudum and not available.

### Helix fascicularis Gmelin, 1791

Original source: Gmelin 1791: 3641 (based on Schröter 1779: pl. 6: fig. 11, the work is not avaible for nomenclatorical purposes, since it does not use binomen).

Type locality: Thüringen, Germany.

Remarks: Menke (1845: 120) considered the name as a synonym to *Valvata pisci-nalis* (Müller, 1774).

## Valvata fennica Westerlund, 1897

Original source: Westerlund 1897a: 197 (no figure, see Gude 1912).

Type locality: "Fennia ad Vosnessenje prope Onega", Finland.

## "Valvata tricarinata f. fercomfuss" (GNI).

Misspelling of Valvata tricarinata var. perconfusa Walker, 1917.

### Valvata (Tropidina) fezi Altimira, 1960

Original source: Altimira 1960: 14, fig. 5.

Type locality: Fuente Roble, Yémeda, Cuenca, Spain.

Variability figured by Callot-Girardi and Girardi (2013).

Remarks: Boeters (1988), Bodon et al. (2001: 175), Arconada and Ramos (2006), and Callot-Girardi and Girardi (2013) agree that this is a **hydrobiid** taxon.

## + Valvata filosa Whiteaves, 1885

Original source: Whiteaves 1885: 25, pl. 3: figs 7, 7a.

Type horizon: Cretaceous.

Type locality: Pincher Creek, North-west Territory, Canada.

# Valvata piscinalis var. fluviatilis in Colbeau (1859: 11) (nomen nudum)

Remarks: Drouët (1867: 94) cited the name as a synonym of a name presented as *Valvata contorta* as published by Menke (1849: 116), without description for *fluviatilis*, and with a question mark concerning the synonymy. Accordingly, Drouët (1867) did not make the name available.

# Valvata fluviatilis Colbeau, 1868

Original source: Colbeau 1868: 93, 110, pl. 2: fig. 16).

Type locality: Belgium.

Remarks: According to ICZN Art. 12.2.7 Colbeau (1868) made the name available in combination with a figure, and no reference was given to Drouët (1867).

Anistratenko and Anistratenko (2001: 139–140) cited the opinion of Ya.I. Starobogatov, that *Valvata piscinalis var. fluviatilis* Colbeau, 1859 is a synonym of *Cincinna contorta*. Most of European malacologists under the name *Valvata fluviatilis* identified separate species, for which Anistratenko & Anistratenko proposed a new name *Cincinna* (*Cincinna*) *falsifluviatilis* attributed to Starobogatov, but the name is probably not available (see there).

### Turbo fontinalis Pulteney, 1799

Original source: Pulteney 1799: 45. Type locality: Dorsetshire, England.

Remarks: "*Turbo fontinalis*, Pult." in Montagu (1803: 348–351, pl. 22: fig. 4) listed as a junior synonym of *Valvata piscinalis* (Müller, 1774). "*Valvata fontinalis*, Mont." mentioned in Leach 1852: Moll. Brit. Synop., p. 206.

"Valvata foraminis Braun, 1843" mentioned in Behrendt (1863: 41).

Remarks: see Friedl (1871: 74: "Prof Alexander Braun in Berlin theilt mir bezüglich der von Dr. G. Behrendt in der Schrift: Die Diluvial- Ablagerungen der Mark Brandenburg, Berlin, 1863, S. 41 erwähnte *Valvata foraminis* (*V. macrostoma*) mit, dass er zwar eine *V. eurystoma* und *paludinaeformis*, niemals aber eine *V. foraminis* aufgestellt habe, dieser Name werde wohl nur durch irriges Entziffern einer von ihm undeutlich geschriebenen Namensetiquette in die Wissenschaft, aus welcher er hiermit definitiv ausgemerzt wird, eingeschlichen sein." [Prof. Alexander Braun in Berlin informs me concerning *Valvata foraminis*, which is mentioned in the paper "Die Diluvial- Ablagerungen der Mark Brandenburg, Berlin, 1863, p. 41" by Dr. G. Behrendt. He has indeed described *V. eurystoma* and *paludinaeformis*, but never a *V. foraminis*. The latter name has been introduced to science probably by an erroneous reading of an unclear name label and thus should be now finally omitted.]

### + Valvata fossaruliformis Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 9–13.

Type horizon: Upper Miocene, Pannonian.

Type locality: Kenese (at Lake Balaton), Hungary.

## + Valvata fragilis Yü, 1965

Original source: Yü 1965: 46, pl. 1: figs 8-10.

Type horizon: Middle - Upper Eocene, upper part of the Yuanchü Chun.

Type locality: Yuanchü, Shansi, China.

# Valvata frigida Westerlund, 1873

Original source: Westerlund 1873: 436-437.

Type locality: "Från Naustejaur I Pite Lappmark" (near Naustejaur in the Samen region), Sweden.

Syntypes: Naturalhistoriska Museet Göteborg (AN 4677), figured by Vinarski et al. (2013b: fig. 3D–E).

Remarks: Falkner et al. (2001) and Glöer (2002) considered this species as a synonym of *Valvata sibirica* Middendorff, 1851.

# + Aphanotylus fuchsi Brusina, 1894

Original source: Brusina 1894: 186-187.

Type horizon: Upper Miocene, Pannonian (horizon of Lyrcæa (Melanopsis)).

Type locality: Kenese at Lake Balaton, Hungary.

"Valvata piscinalis antiqua var. fuhrmanni" mentioned in Piaget (1914)

Original source: Piaget 1914: 164, pl. 1: fig. 11.

Locality: Lac de Neuchatel, Switzerland.

Remarks: Name proposed as an infrasubspecific rank unavailable and thus not available under ICZN Art. 10.4, 45.5.

"Valvata furhrmanni" (GNI, ION).

Misspelling of Valvata fuhrmanni Piaget, 1914.

+ Valvata furlici Brusina, 1897

Original source: Brusina 1897: 25, pl. 13: figs 23-25.

Type horizon: Upper Miocene - Pliocene, Pannonian (Portaferrian).

Type locality: Okrugljak in Zagreb, Croatia.

+ Valvata (Cincinna) fuxinensis Yü, 1987

Original source: Yü X. 1987: 50, figs ?? (not seen; listed in Zoological Record 134(9): #4045).

Type horizon: Lower Cretaceous.

Type locality: Western Liaoning Province, China.

Valvata (Cincinna) gafurovi Izzatullaev, 1977

Original source: Izzatullaev 1977: 948-949, 1 textfig.

Type locality: Gorno-Badakhmanskaya Autonomous Republic, Lake Sylykty-Sai (areal about 300 m<sup>2</sup>), 10 km south–westward from Kyzil-Rabat, on depth 2–3 m, Tajik SSR.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Valvata (Cincinna) gaillardoti Germain, 1911

Original source: Germain 1911: 66.

Type locality: Environs de Saida, Syria.

Remarks: Currently *Islamia gaillardoti* (Germain, 1911) (**Hydrobiidae**), see Bodon et al. (2011: 175).

Valvata gallica Locard, 1889

Original source: Locard 1889: 23-25.

Type localities: "Canal de la Marne au Rhin"; Boulogne–sur-Seine, près de paris; Argenteuil, Versailles, etc. (Seine–et-Oise); bar–sur-Seine (Aube); Canal du Nivernais, Moulins (Allier); Auxonne (Côte–d´Or); Chalon–sur-Saône (Saône–et-Loire); les alluvions du Rhône, au nord de Lyon (Rhône, Ain); le lac du Bourget, près d´Aix–les-Bains (Savoie); l´ile de Trontemoult, à Nantes (Loire-Inférrierue) [col. Bourguignat]; les environs e Bayonne (Basses Pyrénées) [col. Bourguignat]; etc., all France.

+ Valvata piscinalis var. gaudryana Mortillet, 1863

Original source: Mortillet 1863: 295 and 592: textfig. 2.

Type horizon: Middle Pliocene.

Type locality: Joinville-le-Pont, sablière Deligny, Montreuil, France.

Remarks: Often cited as "Valvata piscinalis var. gaudryana Tournouër, 1866» (e.g. Wenz 1928b: 2434), but Mortillet described this species before Tournouër (1866: 791), who only listed the species name.

"Valvata genuina Ziegler" mentioned in Jan (1830: 6) (nomen nudum)

"Valvata genuina Ziegler" mentioned in Menke (1830: 46) (nomen nudum) Valvata genuina Menke, 1845

Original source: Menke 1845: 128 (attributed to Ziegler, but ICZN Art. 50.1.1 is not met).

Type locality: Island Martinique, Caribbean (according to Menke 1845: 128).

Remarks: As outlined by Welter-Schultes (2012b: 96) Ziegler was a shell dealer from Vienna (Austria) and sent labeled shells with new names to researchers, who then described the new species and attributed the names to him. After 1905 the malacologists agreed that he (and other shell dealers as well) should not be regarded as authors of names, because they had in most cases not done any scientific work.

Valvata (Cincinna) geyeri Menzel, 1904 (often cited as Menzel 1900)

Original source: Menzel 1904a: 78–79, with textfigure. Also described in detail and figured by Menzel (1904c: 288, pl. 14: figs 41–48).

Type locality: "Weissen See" (Weißensee) near Füssen in Bavaria, Germany.

Specimens from the type locality were figured bei Glöer (2002: 192, fig. 221:1–4), Syntypes (Senckenberg Museum Frankfurt 140672/7) were figured by Boeters and Falkner (1998: pl. 8: figs 11–12).

Remarks: According to Menzel (1904a, 1904c) and Steusloff (1922) only subfossil. Uhl (1926) considered continuity between the "forms" *piscinalis, alpestris, geyeri*, and *antiqua*. Glöer (2002: 184, 192) regarded *Valvata geyeri* as a subspecies of *Valvata piscinalis* (Müller, 1774). So–called *Cincinna geyeri* from the Aussensee in Schwerin (and those of Russian authors too) are probably varieties (ecomorphs) of *Valvata piscinalis*.

+ Valvata gibbulaeformis Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 14-15.

Type horizon: Upper Pliocene, Dacian.

Type locality: Aita Seacă, Romania.

"Valvata antiqua gigas Goretzki, 1956" (GNI, ION) - unknown.

+ Valvata giraudi Dollfus, 1908

Original source: Dollfus 1908: 20, textfig. 2.

Type horizon: Lower Miocene, Aquitanian.

Type locality: Montaigu-de-Blin, Département de Allier, France.

+ Valvata glacialis Westerlund, 1881

Original source: Westerlund 1881: 48 (name only), 67-68 (description).

Type horizon: subfossil.

Type locality: in glacier of Scania, a province in Sweden.

Valvata globulina Férussac, 1807 (in Férussac and Férussac 1807)

Original source: Férussac and Férussac 1807: 128.

Type locality: France (Férussac's specimens) and Germany: Weimar (specimens from Müller 1774: 179).

Remarks: (1) Mentioned by Férussac and Férussac (1807) without description, only with a name "Ner. Minuta" given in the column headed "Muller". The names of the authors in the "Concordance" list were meant to refer to single works each name (Welter-Schultes and Audibert 2013: 21, Sphaerium ovale). "Muller" referred to Müller's 1774 work, and "Ner. Minuta" to the description of Nerita minuta Müller, 1774 on p. 179. This was a bibliographical reference that made the name Valvata globulina available under ICZN Art. 12.2.1.

- (2) Paladilhe (1866: 170) did not seem to have understood the bibliographical nature of the citation "Ner. Minuta" by Férussac and Férussac (1807). Paladilhe cited this name as "Valvata minuta" (this should have said "Nerita minuta"), because Paladilhe 1866 gave the number 167, not Valvata minuta as used by Férussac and Férussac (1807: 128 under No. 171), which had nothing to do with the name Paladilhe (1866) had in mind by stating "..not "Valvata minuta Draparnaud" mentioned in the footnote.
- (3) In addition, Paladilhe (1866) provided several more citations, for example Gassies (1849: 183), where the name *Valvata minuta* was also presented with a descrption, so the name was clearly made available before 1866.
- (4) Nevertheless, starting with Germain's (1931: 675) citation as "Valvata globulina Paladilhe, 1866", most subsequent authors used this version (e.g. Kadolsky 2008).
- (5) According to Bodon et al. (2001: 175, 202) and Kadolsky (2008: 116) this taxon (finally cited as "*Islamia globulina* (Paladilhe, 1866)") is a **hydrobiid**.
- + Valvata gradata globulosa Jekelius, 1944

Original source: Jekelius 1944: 117, pl. 43, figs 18-20.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Soceni, Banat, Romania.

Remarks: Harzhauser et al. (2002: 103, pl. 8: figs 3–8) still listed this taxon as a valvatid, whereas Bandel (2010: 107) considered synonymy with *Jekeliella gradata* (Fuchs, 1870) (**Hydrobiidae**) (see also below).

"Valvata glohulina Paladilhe, 1866" (among Valvatidae) mentioned in Bech i Taberner and Altimiras I Roset (2003: 841).

Misspelling of *Valvata globulina* Paladilhe, 1866 = *Islamia globulina* (Paladhile, 1866) (**Hydrobiidae**).

## + Valvata (Cincinna) goldfussiana Wüst, 1901

Original source: Wüst 1901: 236, pl. 1: figs 43-46.

Type horizon: Pliocene – Pleistocene. Type locality: Thüringen, Germany.

Remarks: Currently considered as Borysthenia goldfussiana (Wüst, 1901).

## "Valvata goryi" mentioned in Van Damme (1984: 13)

"Valvata nilotica is closely related to the S.W. Asian V. goryi".

Mismatch with Bithynia goryi Bouguignat, 1856 (p. 185; type locality: Nile valley).

## Valvata gracilis Locard, 1889

Original source: Locard 1889: 36 (cited as Valvata gracilis Locard, 1886).

Type localities: Environs de Cherbourgh, dans la Manche; Brest, dan le Finisère; Issoudun, dans l'Indre (Loc.); la Maine, à Angers, dan le Maine–et-Loire (col. Bouguignat), all France.

### + Valvata gradata Fuchs, 1870

Original source: Fuchs 1870b: 536, pl. 21: figs 13–16.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: Bandel (2010: 107, pl. 10, figs 115–119) classified the species among *Jekeliella* (**Hydrobiidae**).

## + Valvata graeca Fuchs, 1877

Original source: Fuchs 1877: 38, pl. 5: figs 6-10.

Type horizon: Pleistocene, Chaudian (cf. Gillet et al. 2003).

Type locality: Livanates near Talanti, Greece.

Remarks: Classified among *Graecamnicola* by Willmann (1981: 211) and lectotype figured (figs 72A–B), a view confirmed by Bandel (2010: 106, pl. 9: figs 108–110, pl. 11: figs 130–134) (**Amnicolidae**).

# "Valvata granifera".

Cited by Leunis (1860: 637) and Westerlund (1879: 18) as an example of confusion of a larval envelop of a phryganid **trichopteran** insect with a valvatid shell. Probably a misspelling of *Valvata arenifera* Lea, 1834, where this is the case, indeed (see there).

# Valvata contorta gratiosa Drouët, 1867

Original source: Drouët 1867: 94.

Type locality: Côte d'Or, France.

# + Valvata gregaria Bukowski, 1895

Original source: Bukowski 1895: 25, pl.8: fig. 7-8.

Type horizon: Marl and/or clay.

Type locality: south of Rhodos Island, Greece.

Remarks: Lectotype designated and figured by Willmann (1981: 77, fig. 25).

+ Valvata gregorii Robinson, 1915

Original source: Robinson 1915: 649, textfigs 1d-e.

Type horizon: Jurassic, Morrison Formation.

Type locality: 4 miles NE of Black Falls, Wand Terrace, Tuba, Arizona, USA.

Holotype: Yale Peabody Museum 17849, a plastoholotype at National Museum of Natural History (http://collections.si.edu/search/record/nmnhpaleobiology\_3307304).

Remarks: Cossmann (1921) considered the species a member of *Ampullaria* (**Ampullariidae**, but Henderson (1935: 189) still listed it among the Valvatidae.

+ Valvata fluviatilis groeberi Fuhrmann, 1990

Original source: Fuhrmann 1990: 152, pl. 1: figs 1–7, pl. 2: figs 1, 5.

Type horizon: Interglacial.

Type locality: Gröbern (Kreis Gräfen-Hainichen), north of Leipzig, Germany.

Valvata grubei mentioned in B. Dybowski and W. Godlewski (1870: 199) (nomen nudum).

Valvata grubei Dybowski, 1875

Original source: W. Dybowski 1875: 28, 31–33, pl. 2: fig. 6–10 (shell), pl. 8: figs 9-12 (radula). Name attributed to Benedykt Dybowski, nut ICZN Art. 50.1.1 is not met. Type locality: Lake Baikal.

"Valvata grubii Dyb." mentioned in Dybowski (1886: 107)

Misspelling of Valvata grubei Dybowski, 1875.

"Valvata guatamalensis" (GNI).

Misspelling of Valvata guatemalensis Morelet, 1851 (which is not listed in GNI).

Valvata guatemalensis Morelet, 1851

Original source: Morelet 1851: Vol. II: 22, no. 138.

Type locality: Río Michatoya, near the port of Istapa [Puerto Ixstapa], Dept. Esquintla, Guatemala.

Remarks: Considered as *Cochliopa guatemalensis* (Morelet, 1849) (**Hydrobiidae**) by Murray and Roy (1968).

+ Cincinna (Atropidina) guriana Gozhik, 2007

Original source: Gozhik 2007: 79, pl. 71: figs 1-2.

Type horizon: Pleistocene (Guriy Sediment).

Type locality: near Syvash (shallow lagoons on the west coast of the Sea of Azov) northeastern coast of the Crimean Peninsula, Ukraine.

Valvata hagenmulleri Hagenmüller, 1884 (non Caziot, 1902) [as spelled in the head-line, no subsequent use] or Valvata hagenmuelleri Hagenmüller, 1884 [as cited in line 2 and in the index/page 383 of the volume; also GNI and ION]. According to ICZN Art. 50.1.1 the correct spelling depends on the usage by the first reviser.

Original source: Hagenmüller 1884: 214 (often cited as "Valvata hagenmülleri Bourguignat", but ICZN Art. 50.1.1 is not satisfied).

Type locality: Seyabouse, Algeria.

Remarks: Boettger (1905: 120) considered the taxon to belong to the **hydrobiid** genus *Daudebardiella* Boettger, 1905 because of the oblique aperture.

Valvata hagenmulleri [sic] Caziot, 1902 (non Hagenmüller, 1884)

Original source: Caziot 1902: 325.

Type locality: valley of Tavignano, Corsica, France.

Remarks: often cited as Valvata hagenmuelleri Caziot, 1902 (e.g. WMSDB).

+ Valvata (Jekeliusiana) oecsensis halavatsi Gozhik, 2002

Original source: Gozhik 2002: 49-50, pl. 2: figs 5-11.

Figured by Gozhik (2007: 81, pl. 70: figs 1–4).

Type horizon: Miocene, Pontian?? (paper not seen).

Type locality: ?? (paper not seen).

Valvata (Cincinna) halopea Westerlund, 1894

Original source: Westerlund 1894: 199.

Type locality: Lake Palavesi near Kuopio, Finland.

+ Valvata (Cincinna) hanjianggensis Yü, 1977 (in Yü and Wang 1977)

Original source: Yü and Wang 1977: 14, pl. 1: fig. 13.

Type horizon: Upper Cretaceous.

Type locality: Jiangsu Province, China.

Cincinna hankensis Prozorova, 1988

Original source: Prozorova 1988: 1736–1738.

Type locality: Small lake near the shore of Khanka Lake, (= Xīngkǎi Hú, Lake Xingkai) is located in East Russia/Northeast China.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Valvata hebraica Lesson, 1832

Original source: Lesson 1832: 347, pl. 13: fig. 8.

Type locality: New Guinea.

Remarks: Baird (1850: 7) and also currently (GNI) considered as *Cyclotus hebraicus* (Lesson, 1832) (**Cyclophoridae**).

+ *Liratina hedobia* Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 32, pl. 4: figs 9-14.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

+ Valvata heidemariae Willmann, 1981

Original source: Willmann 1981: 158, textfig. 56A-C.

Type horizon: Pliocene, Middle Vokasia-Formatin.

Type locality: Vokasia Tal, Island of Kos, Greece.

+ Valvata (C.) helicelloides Huckriede, 1967

Original source: Huckriede 1967: 164, pl. 23: figs 32a-41.

Type horizon: Lower Cretaceous.

Type locality (according to Arkell 1941): Middle Purbeck of Ridgeway, England, U.K.

Remarks: Replacement name of Valvata helicoides Loriol & Jaccard, 1865.

Valvata lewisi var. helicoidea Dall, 1905

Original source: Dall 1905: 123, pl. 2: figs 1–2.

Type locality: Lake Bennett, Yukon Territory; Old Fort Yukon, Alaska.

Syntype: US National Museum No. 180304.

Remarks: Also occurring in Siberia (Kantor et al. 2011: 68). It is possible that this American species is identical with the Siberian ones, since there was a land–bridge during ice–ages (or by transport via water birds). Accordingly, the generic classification needs to be tested.

"Valvata sincera var. helicoidea Dall, 1905" (WMSDB).

Erroneous rendition of Valvata lewisi var. helicoidea Dall, 1905.

"Valvata helicoides" mentioned in Fischer (1855: 581) (nomen nudum)

+ Valvata helicoides Stoliczka, 1862.

Original source: Stoliczka 1862: 535, pl. 17: fig. 5.

Type horizon: Upper Miocene, Pannonian.

Type locality: north of Eszterthal, region of Lake Balaton, Hungary.

Remarks: SEM of shell and (typical valvatid) protoconch figured by Harzhauser and Binder (2004: Pl. 3, Figs 1–3, 4–5). However, according to Bandel (2010: 98, pl. 3: figs 32–37; pl. 4: figs 38–39) the species (cited as "Valvata helicinoides (Stoliczka, 1862)" should be classified among the heterobranch **Omalogyridae**. The latter view appears improbable, however, since Omalogyridae is a purely marine family, whereas valvatids are freshwater inhabitants (and the fossil samples from which this species was described are freshwater deposits).

+ Valvata helicoides Loriol & Jaccard, 1865

Original source: Loriol and Jaccard 1865: 93 (in issue of journal, 33 in reprint), pl. 2: fig. 21–24. Attributed to Forbes, but ICZN Art. 50.1.1 is not satisfied.

Type horizon: Lower Cretaceous.

Type locality (according to Arkell 1941): Middle Purbeck of Ridgeway, England, U.K.

Remarks: (1) Refigured and synonymy by Arkell (1941: 89, figs 14 a, b, 60, 61, 62). He explained: "Edward Forbes was preparing a monograph on the invertebrate fauna of the Purbeck Beds when his work was cut short in 1854 by his death at the age of 39. All that appeared was a preliminary account, in which the genera *Viviparus*, *Valvata*, *Lymnaea*, *Planorbis*, *Hydrobia*, *Physa*, *Melania*, *Cyclas*, and *Unio* were recorded, and also many marine genera, but no species were mentioned. A number of MS. names were introduced by him on labels and in the Survey catalogues, and some of them have been used by other authors, but if any manuscript or type specimens existed they have disappeared".

- (2) Valvata helicoides Loriol & Jaccard, 1865 is a junior homonym of Valvata helicoides Stoliczka, 1862, thus Huckriede (1967: 164) provided a replacement name, Valvata helicelloides.
- (3) However, "Valvata helicoides de Loriol, 1865" was designated as type species of *Provalvata* Bandel, 1991, the type genus of Provalvatidae Bandel, 1991.
- (4) Zhu (1994: 92, pl. 3: figs 8–15) used "Valvata helicoides (Forbes)" for a taxon in the genus Valvata.
- + Valvata kupensis var. hellenica Tournouër, 1877 (non Valvata (Cincinna) hellenica Westerlund, 1898)

Original source: Tournouër 1877: 55.

Type horizon: Pliocene, Sarakos Formation.

Type locality: Island of Rhodos, Greece.

Remarks: SEM photos of the protoconch (cf. Bandel 2010: 100, pl. 4: figs 49–51) confirm this species as a true valvatid.

Valvata (Cincinna) hellenica Westerlund, 1898 (non Valvata kupensis var. hellenica Tournouër, 1877)

Original source: Westerlund 1898: 179.

Lectotype (#4667a) in the Naturhistoriska Museet Göteborg, Sweden, together with two paralectotypes (#4667b), designated by Reischütz and Sattmann (1993: Heldia 2: 51–52).

Type locality: Vyteria in Arkadia, Greece.

Remarks: Currently regarded as junior synonym of *Daphniola exigua* (Schmidt, 1856) (**Hydrobiidae**), see Bodon et al. (2001: 111).

Valvata helvetica Locard, 1889

Original source: Locard 1889: 41–42 (attributed to Bourguignat; but ICZN Art. 50.1.1 not met).

Type locality: Lac Morat, Switzerland.

#### + Valvata hidasensis Kókay, 1967

Original source: Kókay 1967: 84 (Hungarian), 90 (German), pl. 8: figs 3-6.

Type horizon: Middle Miocene, Badenian.

Type locality: Hidas (Komitat Baranya), Bakony mountains, Hungary.

Holotype: Hungary National Museum Natural History #M.66.965.

Remarks: Kókay (2006: 43) himself later considered this taxon as *Sandbergerina hidasensis* (**Truncatellidae**).

#### Valvata (Costovalvata) hirsutecostata Poliński, 1929

Original source: Poliński 1929: 138.

Type locality: Lake Ohrid, 20–30 m, Macedonia (only this side of the lake was studied).

Remarks: Anatomy has been studied by Rath (1986: 103ff). According to molecular data of Hauswald et al. (2008) this taxon is a variety (ecomorph) of *Valvata rhabdota*, whereas Welter-Schultes (2012a: 43 – Hauswald et al. was not cited in that paper) still considers a valid taxon.

### "Valvata histricus" (GNI)

Probably confused with *Paludina histrica* Gould, 1861; currently *Viviparus histricus* (Gould, 1861).

#### + Valvata hoernesi Penecke, 1886

Original source: Penecke 1886: 38, pl. 10 (resp. 7 in reprint): fig. 3 (as *V. hörnesi* dedicated to Rudolf Hörnes, an Austrian from Vienna; cf. ICZN Art. 32.5.2.1).

Type horizon: Pliocene - Pleistocene, Dacian - Romanian.

Type locality: Repušnica, Slavonia, Croatia.

# Valvata cristata hokkaidoensis Miyadi, 1935

Original source: Miyadi 1935: 61-62, pl. 3: fig. 4.

Type locality: Tôro-ko, Hokkaido, Japan.

Holotype: According to Kantor et al. (2011: 68) deposited at Ôtsu Hydrobiological Station, now known as the Center for Ecological Research, Kyoto University.

Remarks: Live movie at http://www.youtube.com/watch?v=f6p3w4WWgG4

## + Valvata homalogyra Brusina, 1874: 90

Original source: Brusina 1874: 90. Figured by Brusina (1897: 25, pl. 14: figs 7–9) and Kókay (2006: 32, pl. 3: figs 11–12).

Type horizon: Neogene, layer of grey marl. Type locality: Ruduša, Dalmatia, Croatia.

### + Valvata utahensis horatii Baily & Baily, 1951

Original source: Baily and Baily 1951: 50, pl. 4: figs 5-5a.

Type horizon: Pleistocene.

Type locality: Lifton, Ideal Beach, Great Basin, Idaho, USA.

Holotype: Academy of Natural Sciences of Drexel University, Philadelphia #187689.

+ Valvata (Valvata) huailinensis Yü & Pan, 1982

Original source: Yü and Pan 1982: 191, figs 9–13 (not seen, listed in Zoological Record 1982(A2): #1479).

Type horizon: Eocene.

Type locality: Uhuo Xian, Hebei Province, China.

Holotype depicted at: www.nimrf.net.cn/ept/eptDataDetail.action?ptzyh=233 2C000100005344

Valvata humeralis Say, 1829

Original source: Say 1829: 244 (in issue of journal, 22 in reprint) (vernacular name: "glossy valvata").

Type locality: Mexico.

Types: not traced.

Remarks from www.iucnredlist.org/apps/redlist/details/189646/0: Recent surveys of this species across western USA found no morphologically similar specimens to the holotype, which is from Mexico. This suggests that individuals thought to be *Valvata humeralis* from the US may be a different species, and *V. humeralis* may actually be restricted to Mexico (Hovingh 2004, Miller et al. 2006). Hovingh (2004) proposed that US specimens should be classified as *Valvata californica*. However, this assessment follows the previously established view of a US/Mexican distribution until further confirmation of the taxonomic status.

For genetic differences to V. utahensis see Miller et al. (2006).

+ Aphanotylus humeratus Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 34, pl. 3, figs 7-9.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

"Valvata humerosa Say, 1829" mentioned in Menke (1834: 128) Misspelling of Valvata humeralis Say, 1829.

+ Valvata humilis Fritzsche, 1924

Original source: Fritzsche 1924: 23, pl. 2: fig. 6.

Type horizon: Cretaceous.

Type locality: limestone of Miraflores, near Potosi, Bolivia.

+ Valvata (Cincinna) hydrobiaeformis Cossmann, 1919

Original source: Cossmann 1919: 119-120, pl. 4: figs 54-55.

Type horizon: Eocene.

Type locality: Bois-Gouët, Lower Loire, Bretagne, France.

+ Valvata idahoensis Taylor, 1981 (in Taylor and Smith 1981)

Original source: Taylor and Smith 1981: 358, pl. 4: fig. 1–12.

Type horizon: Pliocene.

Type locality: Honey Lake, Lassen County, California, USA.

Remarks: Replacement name for Valvata multicarinata Yen, 1946 (non Hislop, 1860).

#### + Valvata ilici Brusina, 1894

Original source: Brusina 1894: 181 (footnote 2). Figured by Brusina (1897: 26, pl.

13: figs 26–27) and Brusina (1902: pl. 13: figs 24–27).

Type horizon: Upper Miocene - Pliocene, Pannonian (Portaferrian).

Type locality: Okrugljak, near Zagreb, Croatia.

#### + Valvata sincera illinoisensis Baker, 1930

Original source: Baker 1930: 189, textfig. 1.

Type horizon: Pleistocene.

Type locality: near the west end of Crystal McHenry County, Illinois, USA.

#### Valvata imhofi Clessin, 1887

Original source: Clessin 1887: 776–777: fig. 510 (among section *Tropidina*).

Type locality: Lake Garda, Trentino, Italy.

## "Valvata imperialis Bourguignat, 1884" (GNI, ION)

Probably confused with Viviparus imperialis Bourguignat, 1884.

# "Valvata impura Stentz / Ziegler" (GNI: "Valvata impura Ziegl.")

cited in Villa, A. and Villa, J.B (1841: 33) and by Brusina S. (1870: 38)

cited by Systax data-base for the Löbbecke Museum Düsseldorf with locality "Austria, Carinthia, Klagenfurt"

Paludina impura obtusa Menke, 1830 was regarded as synonym to Valvata contorta subovata Menke, 1845 by Menke (1845: 116).

Remarks: As outlined by Welter-Schultes (2012b: 96) Ziegler was a shell dealer from Vienna (Austria) and sent labeled shells with new names to researchers, who then described the new species and attributed the names to him. After 1905 the malacologists agreed that he (and other shell dealers as well) should not be regarded as authors of names, because they had in most cases not done any scientific work.

### + Valvata incerta Yen, 1947

Original source: Yen 1947: 272, pl. 43: figs 4a-c.

Type horizon: Pliocene.

Type locality: Salt Lake Group," about 14 miles northwest of Logan, Northern Utah, USA.

#### Valvata inconspicua Adams, 1850

Original source: Adams 1850: 131–132.

Type locality: Jamaica.

Remarks: The types from the Museum of Camparative Zoology (Harvard) were studied and the holotype (#185089) was figured by Johnson and Boss (1972: 205–206; pl. 41: fig. 7).

#### + Valvata indecisa Cossmann, 1924

Original source: Cossmann 1924: 8, pl. 5: figs 36–37. Referred to "Valvata indecisa" mentioned in Cossmann (1921: 170) (nomen nudum).

Type horizon: Paleocene, Danian.

Type locality: Belgium.

Remarks: Esu (1984: 31) considered this species closely related to *Islamia sarda* Esu, 1984 (**Hydrobiidae**).

### + Valvata inflata Sandberger, 1875

Original source: Sandberger 1875: 746.

Type horizon: Upper Pliocene.

Type locality: Bligny, Département de Merne, France.

### + Valvata inflexa Deshayes, 1862

Original source: Deshayes 1861–1863, Vol. 2: 527, pl. 36: figs 19–22.

Type horizon: Eocene.

Type locality: Bernon, près Epernay Basin de Paris, France.

## Valvata tricarinata var. infracarinata Vanatta, 1915

Original source: Vanatta 1915: 104-105: figs 1-2.

Type locality: White Pond, NJ (USA).

Holotype: Academy of Natural Sciences of Drexel University, Philadelphia (ANSP) No. 12087.

## Valvata (Cincinna) innesi Pallary, 1901

Original source: Pallary 1901a: 243, pl. 1: figs 9–11.

Type locality: l'Ouady Feiran, Sinai Peninsula, Egypt.

# Valvata (Ohridotropidina) relicta interlithonis Hadžišce, 1956

Original source: Hadžišce 1956: 59–62, Abb.1 (3 variants of shell) Abb. 2 (radula). Type locality: Lake Ohrid, Macedonia.

#### Valvata intermedia Locard, 1889

Original source: Locard 1889: 50 (attributed to Bourguignat, cf. ICZN Art. 50.1.1).

Type locality: Lago di Como near Bellagio, Lombardia, Italy.

Remarks: The WMSDB regards the taxon as synonym to Valvata cristata Müller, 1774.

+ Borysthenia intermedia Kondrashov, 2007

Original source: Kondrashov 2007: 513, pl. 5, figs 1–2.

Type horizon: Middle Pleistocene of Oka-Don Plain.

Type locality: Novokhopersk, right bank of Khoper river, Voronezh region, Russia.

+ Valvata interposita De Stefani, 1880

Original source: De Stefani 1880: 48, 136, pl. 3(4): fig. 13.

Type horizon: Upper Pliocene.

Type locality: Pacciona, Val de Tresa (Verri) near Lago Lugano, Italy.

Remarks: Delafond and Depéret (1893: 152) considered "Valvata inflata var. curta Tournouër" from Bresse, France identical to Valvata interposita de Stefani, 1880.

+ Pachystoma involutum Tausch, 1886

Original source: Tausch 1886: 14, pl. 2: fig. 9.

Type horizon: Upper Cretaceous, "Gosaumergel".

Type locality: Csinger valley near Ajka, Bakony, Hungary.

Remarks: Bandel and Riedel (1994: 23, pl. 14: figs 4–7) figured the shell and protoconch by SEM.

+ Cincinna (Atropidina) cobalcescui ismailense [sic: should be ismailensis, since Cincinna is feminine] Gozhik, 2007

Original source: Gozhik 2007: 80, pl. 72: fig. 5-6.

Type horizon: Upper Miocene, Maeotian. Type locality: Izmajil Region, Ukraine.

Cincinna iturupensis Prozorova, 1898 (in Prozorova and Starobogatov 1998)

Original source: Prozorova and Starobogatov 1998: 61, 63: fig. 3D.

Type locality: Lake Dobroye, Iturup Island, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

+ Valvata jaccardi Locard, 1893

Original source: Locard 1893a: 212-213, pl. 12: fig. 5.

Type horizon: Upper Miocene.

Type locality: Le Locle (Canton Neuchatel) and midi de Vicques (Canton Bern), both Switzerland.

+ Cincinna (Cincinna) bugense jagorliticus [sic: should be bugensis jagorlitica, since Cincinna is feminine] Gozhik, 2007

Original source: Gozhik 2007: 76, pl. 67: figs 1-3.

Type horizon: Upper Miocene – Maeotian.

Type locality: bay of Jagorlyk, district of Pridnestrowje, Moldawia.

+ Borysthenia jalpuchense [sic: should be jalpuchensis, since Borysthenia is feminine] Gozhik, 2002

Original source: Gozhik 2002: 48, pl. 2: figs 15–17. Also figured by Gozhik (2007: 77, pl. 66: fig. 4–5).

Type horizon: Miocene, Pontian.

Type locality: ?? (not seen).

### Valvata japonica Martens, 1877

Original source: Martens 1877: 116–117.

Type locality: Lake Hakone, Japan.

Types not traced. Possibly in Museum für Naturkunde, Berlin (fide Dance 1986).

Remarks: Live movie at http://www.youtube.com/watch?v=Z-GvcF8kOco

### Valvata jelskii Crosse, 1863

Original source: Crosse 1863: 382–383, pl. 13: fig. 3 (3 views).

Type locality: River Dnieper, near Kiev, Ukraina.

Holotype: Museum National d'Histoire Naturelle, Paris.

## + Valvata (Cincinna) jiangsuensis Yü, 1977 (in Yü and Wang 1977)

Original source: Yü and Wang 1977: 14, pl. 1: figs 15-16.

Type horizon: Upper Cretaceous.

Type locality: Jiangsu Province, China.

## + Amplovalvata jingguensis Pan, 1977

Original source: Pan 1977: 118, pl. 5: fig. 18.

Type horizon: Middle Jurassic.

Type locality: Jinggu County, Yunnan Province, China.

# + Valvata (Cincinna) joncheryensis Wenz, 1930

Original source: Wenz 1930: 65.

Type horizon: Upper Pliocene.

Type locality (according to Deshayes, 1862): Jouchery, Gueux, Rilly, Basin de Paris, France.

Remarks: Replacement name for *Valvata parvula* Deshayes, 1862 (not Meek and Hayden 1856).

# "Valvata judaica" mentioned in Innes (1884: 348) (nomen nudum)

Remarks: Innes (1884) referred to "Bourg., Spec. Moll. n°. 192, 1878". However, as outlined by Connolly (1934), the latter work was never published.

# + Valvata juliae Scholz & Glaubrecht, 2010

Original source: Scholz and Glaubrecht 2010: 997 ff, textfigs 2-3.

Type horizon: Pliocene, Koobi Fora Formation.

Type locality: Turkana Basin, Northern Kenya.

#### + Valvata (Cincinna) circinata var. jurana Jodot, 1954

Original source: Jodot 1954: 538, 548, pl. 23b, figs 5a,b, 6a,b.

Type horizon: Ludién, Eocene.

Type locality: 9 km north of Lélex, Département Ain, France.

#### + Valvata jurassica Branson, 1935

Original source: Branson 1935: 519, pl. 57: figs 7-8.

Type horizon: Jurassic, Morrison Formation.

Type locality: 3 miles south of Mayoworth, Wyoming, USA.

### + Pentagoniostoma jurassicum Branson, 1935

Original source: Branson 1935, 520, pl. 57: figs 4–6. Classified as *Tropidina juras-sicum* (Branson) in Yen (1952: 40).

Type horizon: Jurassic, Morrisson Formation.

Type locality: 3 miles south of Mayoworth, Wyoming, USA.

#### + Aphanotylus jurassicus Pan, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 150, figs ?? (not seen, listed in Zoological Record 1980(A2): #3883).

Type horizon: Middle Jurassic.

Type locality: Zhejiang, Southern Anhui, China.

### + Valvata (Borysthenia) juxi Schlickum & Strauch, 1979

Original source: Schlickum and Strauch 1979: 13, pl. 1: fig. 7.

Type horizon: Pliocene - brown coal area.

Type locality: Bergheim (abandoned opencast mine Fortuna-Garsdorf), Nordrhein-Westfalen, Germany.

#### + Valvata kamirensis Willmann, 1981

Original source: Willmann 1981: 114-115, textfig. 42A-B, 43A-C.

Type horizon: Pliocene, Salakos Formation.

Type locality: 2 km west of Kamiros ruins, Island of Rhodos, Greece.

Remarks: Note the high polymorphism of this species.

## Cincinna kamchatica Prozorova & Starobogatov, 1998

Original source: Prozorova and Starobogatov 1998: 63, 65: fig. 3A.

Type locality: Eastern Kamchatka, small pond on Bolshoi Kamchatskyi Island in the valley of Kamchatka River, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

### + Valvata (Mesovalvata) karameilica Wei, 1984

Original source: Xinjiang Dizhi Ju 1984, 84, figs ?? (not seen, title in Zoological Record 126(9): #3985).

Type horizon: ??

Type locality: Xinjiang Province, China.

+ Valvata kavusani Schütt & Kavusan, 1984

Original source: Schütt and Kavusan 1984: 220, textfig.

Type horizon: Upper Miocene.

Type locality: top of the pass Kozluca, between Bali and Harmancık near Kütahya - Bursa in northwestern Anatolia, Turkey.

Valvata khedivialis Innes, 1884

Original source: Innes 1884: 348.

Type localities: "Bords du lac Timsah, dans l'isthme de Suez; sur les rives du lac Moeris, au Fayoun, et sur celles du lac Mariout, près Alexandrie"; all Egypt.

Cincinna kizakikoensis Fujita & Habe, 1991

Original source: Fujita and Habe 1991: 25 (English 26), figs 1-2.

Type locality: Lake Kizaki (also found in Lake Nakazuna), Nagano Prefecture, Honshu, Japan.

Holotype and paratypes deposited at National Science Museum Tokyo (NSMT–Mo 69606).

Valvata (Costovalvata) klemmi Schütt, 1962

Original source: Schütt 1962: 158–159: fig. 1 (shell): fig. 8 (radula). SEM photos of shell and radula provided by Falniowiski et al. (2007: specimens from the type locality cited as *Valvata piscinalis*).

Type locality: South border of Lake Trigonis/Trichonida near Agrinio (Bodina), Aetolia, Greece.

Holotype: Senckenberg Museum Frankfurt/Main #166762.

Remarks: Hauswald et al. (2008) showed that this taxon is a reaction form (ecomorph) of their *Valvata* "sp1.", a species lacking the characteristic ridges of the shell and resembling *Valvata piscinalis*, whereas Welter-Schultes (2012a: 43; no citation of Hauswald et al. 2008 in this paper) considered a valid species. It appears possible that *Valvata klemmi* is a polymorphic species.

"Valvata (Atropidina) klinensis Milaschewitch, 1881" mentioned in Anistratenko and Anistratenko (2001: 145) and Gozhik (2007: 77).

Misspelling of Valvata fluviatilis var. kliniensis Milachevich, 1881.

Valvata fluviatilis var. kliniensis Milachevich, 1881

Original source: Milachevich 1881: 236 (in issue of journal, page 22 in reprint).

Figured by Gozhik (2007: pl. 68: figs 5–7).

Type locality: "Moujevo" (vicinities of Moscow), Russia.

Syntypes: Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

Cincinna (Sibirovalvata) klucharevae Starobogatov, 1985

Original source: Starobogatov and Zatravkin 1985: 1158, fig. 5.

Type locality: Southern Sakhalin Island, near Bousset lagoon, Bolshoj Vavaj Lake, depth 2.4 m, between Kamschatka Peninsula and Japan, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

### + Valvata (Tropidina) kochi Pavlović, 1932

Original source: Pavlović 1932: 245, pl. 1: figs 14-16.

Type horizon: Pliocene-Pleistocene, Metohija Series.

Type locality: Topličane ("blue marne Levantines near Topelić"), Metohija basin, Kosovo.

Also figured by Miloshevich (1984: pl. 1: figs 48–53).

### Valvata (Cincinna) korotnevi Lindholm, 1909

Original source: Lindholm 1909: 73, pl. 1: figs 63-65.

Type locality: Angarskyi sor (northern Baikal), Russia.

Lectotype designated by Starobogatov and Streletzkaya (1967), deposited at Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

## Megalovalvata kozhovi Sitnikova, 1983

Original source: Sitnikova 1983: 35–37: fig. 2.

Type locality: Zavorotnaya Bay (western coast of northern Baikal), Russia.

Holotype at Zoological Institut of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

# Valvata kugleri Forcart, 1948

Original source: Forcart 1948: 50.

Holotype and paratypes in Naturmuseum Basel, Switzerland #2631

www.nmb.bs.ch/typenkatalog\_mollusken\_internetversion\_korrekturen.xls

Type locality: Pota Juela, Cumarebo, Falcon, Venezuela.

Remarks: Currently (GNI) considered as *Nanivitrea kugleri* (Forcart, 1948) cf. Nuttall (1989: 175, 213) (**Hydrobiidae** - Cochliopinae), or as *Tudora* (*Tudoata*) williamsoni kugleri (Forcart, 1948) (**Annulariidae**).

# Valvata kukunorica Sturany, 1900

Original source: Sturany 1900: 39 (issue of journal, page 23 in reprint), pl. 3: figs 7–9. Type locality: Lake Kuku–nor (today Qinghai Lake) in Nan-Shan mountains, Tibet.

# "Valvata kunkunorica" (GNI).

Misspelling of Valvata kukunorica Sturany, 1900 (not listed in GNI).

#### + Valvata kupensis Fuchs, 1870

Original source: Fuchs 1870b: 543, pl. 22: figs 23-25.

Type horizon: Upper Miocene, Upper Pannonian.

Type locality: near Kúp, Pápa, Hungary.

#### Valvata lacustris Clessin, 1877

Original source: Clessin 1877: 177.

Type locality: Lake Geneva, 50–100 m, Switzerland.

Remarks: According to Clessin (1877) a deep water morph being derived from *Valvata piscinalis antiqua* Morris, 1838.

## Valvata (Cincinna) piscinalis var. ladogaensis Lindholm, 1912

Original source: Lindholm 1912: 289 (name only), 298 (description).

Type locality: Lake Ladoga (1) entry of river Kabona, between the channels; (2) Bay of Wolchow (vis–à-vis of entry of river Sjäss), northwestern Russia.

"Valvata piscinalis var. ladogensis Lindholm, 1912" mentioned in Anistratenko and Anistratenko (2001: 139, 142).

Misspelling of Valvata (Cincinna) piscinalis var. ladogaensis Lindholm, 1912.

# Valvata (Pseudomegalovalvata) laethmophila Bekman & Starobogatov, 1975

Original source: Bekman and Starobogatov 1975: 95: fig. 1D.

Type locality: near Listvennichnoe, Baikal Lake, depth 1380 m, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

# + Microcyclas lamellosus Raspail, 1909

Original source: Raspail 1909: 197, pl. 4: figs 27-29.

Type horizon: Eocene.

Type locality: Vouast, près Montjavoult, Dept. Oise, France.

Remarks: Type species (by monotypy) of genus Microcyclas Raspail, 1909.

#### + Valvata landereri Hermite, 1879

Original source: Hermite 1879: 184, 190, 199 (name only), 320 (description), pl. 5: figs 21–22.

Type horizon: Lower Eocene.

Type locality: Sineu, Mallorca, Spain.

Remarks: According to the (not round) aperture probably not a valvatid.

# + Valvata larteti Bourguignat, 1881

Original source: Bourguignat 1881: 153, pl. 8: figs 297-299.

Type horizon: Middle Miocene - calcaire marneux.

Type locality: colline de Sansan, west of Toulouse, France.

Remarks: with 9 mm shell size probably no Valvata.

Valvata (Cincinna) andreana var. latior Menzel, 1904

Original source: Menzel 1904a: 77–78, textfig. Cited as *Valvata andreaei* var. *latior* in Menzel (1904c: 287, pl. 14: figs 11–14, 25, 27–28, 32–34, 37–38, 40).

Type horizon: post-glacial.

Type locality: Wallensen near Salzhemmendorf, Kreis Hameln, Niedersachsen; and Alfeld / Leine, Niedersachsen, Germany.

Remarks: Based on fossil types, but considered as extant by Starobogatov et al. (2004) and Kantor et al. (2011) occurring in the lakes of the basin of the Baltic Sea.

"Valvata piscinalis var. latius umbilicata" or "late umbilicata" mentioned in Schmidt (1856: 160) (nomen nudum, presented in two spellings without description or indication, only with locality).

Locality: Ebenthaler Allee (avenue) near Klagenfurt, Carinthia, Austria.

Remarks: Note the similar (available) name Valvata umbilicata Servain, 1881.

### Valvata (Atropidina) lauta Lindholm, 1909

Original source: Lindholm 1909: 74–75, pl. 1: figs 68–70. Attributed to Milaschewitsch, but ICZN Art. 50.1.1 is not satisfied.

Type localities: Tschiwyrkuikji Saliw; opposite to entry of river Angara (Dagarskaja Guba); bay of Besimennaja, 10 Werst (10,6 km) from village Gorjatschinskoje, all Lake Baikal, Russia.

Lectotype designated by Sitnikova et al. (1983) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg; Nr. 17.

#### + Valvata leduensis Li, 1988

Original source: Li 1988: 157, pl. 1: figs 1–12.

Type horizon: Upper Cretaceous, Minhe Formation.

Type locality: Xining-Minhe Basin of Qinghai, China.

## + Valvata leei Logan, 1900

Original source: Logan 1900: 133, pl. 31: figs 1–3. Cited and figured as + Amplovalvata scabrida leei (Logan) in Yen (1952: 40, pl. 6: figs 3a–c).

Type horizon: Jurassic, Morrison Formation.

Type locality: Freeze-out Hills, Wyoming, USA.

#### Valvata lenticularis Küster, 1856.

Original source: Küster 1856: 78.

Type locality: Sediment of river Regnitz near Bamberg, Germany.

# + Valvata leopoldi Boissy, 1848

Original source: Boissy 1848: 284, pl. 6: fig. 25a,b (as a nomen nudum in Boissy 1846: 178).

Type horizon: Lower Paleocene, Thanetian.

Type locality: Calcaire de Rilly-la-Montagne: near Reims, France.

### + Valvata leptonema Brusina, 1892

Original source: Brusina 1892: 167–168 (in issue of journal, 55–56 in reprint). Figured in Brusina (1902: pl. 14: figs 5–7).

Type horizon: Upper Miocene, Pannonian. Type locality: Markuševec (Zagreb), Croatia.

#### + Valvata leptopomoides Reuss, 1868

Original source: Reuss 1868: 83, pl. 1: fig. 4.

Type horizon: Lower Miocene, Eggenburgian.

Type locality: freshwater limestone of Tuchořice, Bohemia, Czech Republic.

Remarks: currently Craspedompoma leptopomoides (Reuss, 1868) (Pomatiasidae).

#### + Valvata lessonae Sacco, 1886

Original source: Sacco 1886: 177, pl. 1: figs 8a,b,c.

Type horizon: Upper Pliocene.

Type locality: Fossano, Piemont, Italy.

## "Valvata letourneuxi" mentioned in Innes (1884: 349) (nomen nudum with localities)

Remarks: Innes (1884: 349) refers to "Bourguignat, Spec. Moll. nº. 194, 1878".

However, as outlined by Connolly (1934), the latter works was never published. Innes (1884) listed two localities in Egypt, but did not provide a description of the species.

### + Valvata (Tropidina) levantica Halaváts, 1889

Original source: Halaváts 1889: 228, pl. 34: fig. 6a,b.

Type horizon: Pliocene-Lower Pleistocene.

Type locality: "Nagy András János" - fountain (artesic) in Hódmezővásárhely, Hungary.

Remarks: The large size (9 mm high, 10 mm wide) and the shell shape both make a valvatid nature unlikely.

#### Valvata lewisi Currier, 1868

Original source: Currier 1868: 9.

Type locality: Grattam, Kent (Michigan), USA.

Types: not traced.

Remarks: Vernacular name "fringed valvata". Replacment name for *Valvata striata* Lewis, 1856, not Philippi, 1836 (p. 147, pl. 8: fig. 3a–c; **Tornidae**). It is improbable that this American species is identical with the Siberian ones reported by Starobogatov et al. (2004) (cf. Kantor et al. 2011: 69). For reproduction see Lang and Dronen (1970).

Radula (rhachis tooth) figured by Baker (1928: 28).

# + Valvata (Atropidina) liaoxiensis Yü, 1987

Original source: Yü X. 1987: 51, figs ?? (not seen, listed in Zoological Record 134(9): #4045).

Type horizon: Lower Cretaceous.

Type locality: Western Liaoning Province, China.

Valvata lietuvensis Chernogorenko & Starobogatov, 1987

Original source: Chernogorenko and Starobogatov 1987: 149.

Type locality: Vyshtitis Lake, at the border of Kaliningrad district and Lithuania. Holotype: Zoological Institut, Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

### Valvata lilljeborgi Westerlund, 1897

Original source: Westerlund 1897a: 137.

Type locality: "Suecia in fluvio Fyrisån ad Upsala", Sweden.

Syntypes in Naturalhistoriska Museet Göteborg (AN 4654) (Kantor et al. 2011: 69) figured by Vinarski et al. (2013b: figs 4A–B) and Zoological Institut, Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

## "Valvata limpida" (GNI, ION).

Possibly an error for Vitrina limpida Gould, 1850.

#### + Valvata (Cincinna) lorentheyi Wenz, 1928

Original source: Wenz 1928a: 120 (as *lörentheyi*, dedicated to the Hungarian Emerich Lörenthey; cf. ICZN Art. 32.5.2.1).

Type horizon: Upper Miocene, Pannonian.

Type locality: Szegzárd, Kom. Tolna, Hungary.

Remarks: According to Wenz (1928b: 2438) a replacement name for *Vivipara unicarinata* Lörenthey, 1894, non *Valvata unicarinata* Lörenthey, 1894.

## + Valvata loryana Loriol, 1865

Original source: de Loriol and Jaccard 1865: 33, pl. 2: fig. 20.

Type horizon: Jurassic / Lower Cretaceous.

Type locality: Villers-Le-Lac, northwest of Neuchâtel, France.

Remarks: Designated by monotypy as type species of valvatid genus *Loriolina* Huckriede, 1967.

#### + Valvata lucici Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 31-32.

Type horizon: Pliocene-Pleistocene, Dacian-Romanian.

Type locality: Čerević (Fruška Gora), Serbia.

#### Paludina lustrica Say, 1821

Original source: Say 1821: 175.

Type locality: Shore of Cayuga Lake, New York, U.S.A.

Remarks: (1) Listed as "Valvata lustrica m. (Padulina lustrica Say)" by Menke (1830: 46). Menke (1845: 130) stated that his Valvata lustrica is identical to Paludina lustrica Say, lacks the typical valvatid gill and should be placed in **Amnicolidae** or **Hydrobiidae**.

- (2) Pilsbry (1943) designated *Paludina lustrica* Say, 1821 as type species of *Euamnico-la* Crosse & Fisher, 1891: 262 (Kabat and Hershler 1993: 22), the latter is now the objective synonmy of *Amnicola* Gould & Haldeman, 1840 (see ICZN 1973: Opinion 1108).
- (3) Interestingly, Hagen (1864: 130) and Lindholm (1906: 193) both considered this taxon as the larval shell of a **trichopteran insect** (*Hydropsyche*).

"Valvata maackei Gerstf." mentioned in Westerlund (1877: 109).

As stated by Dybowski (1886: 108, footnote) and Lindholm (1909: 79) Gerstfeldt (1859) did not describe this species. Westerlund (1877) probably confused the taxon with *Choanomphalus maackei* Gerstfeld, 1859 (**Planorbidae**).

#### Valvata macei Locard, 1884

Original source: Locard 1884: 208 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not satisfied).

Type locality: Saint-Martin de Varreville (Departement de la Manche), France.

#### Valvata macrostoma Mörch, 1864

Original source: Mörch 1864: 321 (diagnosis) (attributed to Steenbuch, but ICZN Art. 50.1.1 is not satisfied).

Type locality: "Talrig i en Mosegröft paa sognefogdens Lod i Rudi (Stb.); Sorösö [Sorø] (Stp.); Viborgsö [Viborg] (Fedd.)" Midtjylland, Danmark.

Types: According to Dance (1986), Mörch's collection is dispersed between Zoological Museum Copenhagen and British Museum of Natural History (London).

Remarks: "Valvata macrostoma Steenbuch" in Beck (1847: 123) is a nomen nudum. For life cycle see Myzyk (2004). Live photos at: http://www.allesumdieschneck.de/html/valvata\_macrostoma.html

### + Amplovalvata magna Pan, 1980

Original source: Yü and Pan 1980: 149, figs ?? (not seen, listed in Zoological Record 1980(A2): #3883).

Type horizon: Middle Jurassic.

Type locality: Zhejiang, Southern Anhui, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=36293

+ Valvata magniumbilicata Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 29, pl. 3: figs 1-3.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

"Valvata alpestris var. major" in Favre (1922: 50) (nomen nudum with locality) Locality: Lac de Joux, Kanton Waadt, Switzerland.

"Valvata major Gredl." http://zipcodezoo.com/Animals/V/Valvata\_major/ (also GNI).

There is a *Valvata piscinalis* var. *minor* in Gredler (1859: 250), but not a var. *major*. Westerlund (1886: 132f) mentioned a "forma *major*" for each of several *Valvata* species without any diagnosis except the size.

### + Amplovalvata manasensis Zhu, 1994

Original source: Zhu 1994: 94 (Chinese) / 102–103 (English), pl. 4: figs 9–14.

Type horizon: Middle Jurassic.

Type locality: Ziniquanzi, Janggar Basin, Northern Xinjang, China.

## + Borysthenia mankeanaformis Gozhik, 2007

Original source: Gozhik 2007: 75, pl. 65: fig. 1. Expressivly meant as "similar to Borysthenia mankeana [sic]" (i.e. B. menkeana (Jelski, 1863)).

Type horizon: Pleistocene (Alluvium VIII. Terrace).

Type locality: river Dnjestr near village Velikaya Kosnitza, Ukraine.

#### + Amplovalvata mansueta Pan, 1982

Original source: Pan 1982: ??, figs 3–4 (not seen, not listed in Zoological Record). Type horizon: Jurassic.

Type locality: Artesian springs, Sichuan Jiangyou County Kang, Sichuan Basin, China. Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=53438

### + Valvata marginata Michaud, 1855

Original source: Michaud 1855: 50 (in issue of journal, 18 in reprint), pl. 5: figs 16–18. Type horizon: Lower Pliocene, Zanclean («Plaisancien»).

Type locality: Hauterive, Département de Drôme, France.

Remarks: Type species of *Pachystoma* Sandberger, 1875 and of *Oncostoma* Brusina, 1894 (see there).

# "Valvata mariae" mentioned in Sidiropoulou (2003: 38-39, fig. 14)

Locality: Pliocene - Pleistocene, Ptolemaida, West-Macedonia, Greece.

Remarks: This PhD–Thesis, in which 35 species are ostendibley described, does not meet the conditions of ICZN Art. 8.1.3 and 9.9. Accordingly, this name is not available.

# "Valvata margine columellari" (GNI)

Probably misinterpreted from a Latin description, not a binominal name.

# "Valvata marmorata", "Valvata marmorea", "Valvata marmoreus" (GNI, ION)

Probably all errors for *Cochlea mormorea* Swammerdam, 1737 (p. 185, pl. 10: fig. 2), according to Martini (1767: 104) and Müller (1774: 194) a synonym of *Nerita fluviatilis* (currently *Theodoxus fluviatilis* (Linné, 1758), Neritidae). Note that *Nerita piscinalis* Müller, 1774 is currently *Valvata piscinalis*.

Valvata maroccana Pallary, 1904

Original source: Pallary 1904: 41, pl. 3, figs 6–7.

Type locality: Morocco, north-west Africa.

Remarks: According to the figures with certainty not a *Valvata*, but I could not find any subsequent determination of current systematic position of this species.

+ Valvata lewisi mccolli LaRocque, 1932

Original source: LaRocque 1932: 199, pl. 1: figs 1a-3c.

Type horizon: Pleistocene - marl of Upper Wisconsin age.

Type locality: Shallow Lake, Ontoario, USA.

"Valvata media" mentioned in Férussac and Férussac (1807: 128/129, no. 167) (nomen nudum)

Valvata tricarinata mediocarinata Baker, 1928

Original source: Baker 1928: 17, pl. 1: fig. 7.

Type locality: Lower Asylum Bay, Lake Winnebago, Wisconsin, USA.

Valvata menkeana Jelski, 1863

Original source: Jelski 1863: 136-137, pl. 6: fig. 4.

Type locality: "Profonds du Dnieper", Ukraina.

Lectotype figured in Anistratenko and Anistratenko (2001: 133, fig. 96), deposited at Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 2. Paralectotypes in Museum National d'Histore Naturelle, Paris.

Remarks: Currently (e.g. Kantor et al. 2011: 74) considered as belonging to genus *Borysthenia*. Radula and parts of genital system are figured by Sitnikova et al. (1986: figs 1, 2); SEM of protoconch by Anistratenko et al. (2010).

Valvata meretricis Locard, 1889

Original source: Locard 1889: 26 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type localities: (1) Marais du Boucau near Bayonne, Pyrénées-Atlantiques, (2) "lac de la Négresse" near Bayonne, Pyrénées-Atlantiques, (3) "Moulins", Allier, France.

Valvata meridionalis Locard, 1889

Original source: Locard 1889: 59 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type locality: Viareggio, Toscana, Italy.

Valvata mergella Westerlund, 1883

Original source: Westerlund 1883: 166; also figured by Westerlund (1885: 209, pl. 5: figs 22, a-d).

Type locality: Port Clarence, Alaska, U.S.A.

Syntypes (16 specimens) located in Swedish Museum of Natural History (AN 1640), figured by Johannes (2010).

Remarks: Vernacular name "rams-horn valvata". This taxon is also listed by Kantor et al. (2010) for Russia, but it is uncertain, whether the American and the Russian specimens are conspecific.

### + Valvata menyinensis Yen, 1969

Original source: Yen 1969: 42, pl.1: figs 10–11.

Type horizon: "Higher than Men-Ying of Lower Cretaceous", Kuan-Chuang-Series.

Type locality: Meng-Yin-valley (Kuan-Chuang), Shantung, North China.

### + Valvata michaudi Deshayes, 1862

Original source: Deshayes 1861–1863, Vol. 2: 525, pl. 36: figs 6–8.

Type horizon: Middle Eocene.

Type locality: Caumont, Mareul-en-Dole, Basin de Paris, France.

#### Valvata michleri Kuščer, 1932

Original source: Kuščer 1932: 56-57, pl. 5: fig. 3.

Type locality: Ljubljanica spring, Mocilnik, Slovenia.

Remarks: According to Binder (1967a) synonymous to *Valvata minuta* Draparnaud, 1807 (see there; **Hydrobiidae**); according to Bodon et al. (2001:124) a junior synonym to *Hauffenia tellini* Pollonera, 1898 (**Hydrobiidae**), whereas Callot-Girardi and Girardi (2013) considered two separate species.

#### Valvata micra Pilsbry & Ferriss, 1906

Original source: Pilsbry and Ferriss 1906: 172, pl. 9: figs 7-9.

Type locality: Guadeloup River, Texas, USA.

Syntypes at Academy of Natural Sciences of Drexel University, Philadelphia #91322. Syntypes from locality 6 are figured by Hershler and Longley (1986: 133; Fig. 3J,N).

Remarks: Pilsbry (1916) himself considered the species a hydrobiid (*Horatia*). Later on, *Valvata micra* was designated as type species of *Phreatodrobia* Hershler & Longley, 1986 (**Hydrobiidae**) by original designation, see also Nuttall (1989: 222), Kabat and Hershler (1993: 43).

#### Valvata micrometrica Locard, 1889

Original source: Locard 1889: 56-57.

Type Locality: «Fontaine du Camarde, près de Valence dans Gers», France.

Remarks: Esu and Girotti (1975: 235) classified *Valvata micrometrica* in *Horatia* (**Hydrobiidae**). Falkner and Boeters (2003: 21) designated a lectotype (now Museum National de l'Histoire Naturelle, Paris).

#### Valvata microscopica Nevill, 1877

Original source: Nevill 1877: 21.

Type locality: brackish-water pond near Port Canning, India.

Remarks: According to Abbott (1949: original description repeated) considered as *Clenchiella microscopica* (Nevill, 1877) (**Hydrobiidae**).

"Valvata (Tropidina) microstoma" mentioned in Kolářova et al. (2010) Misspelling of Valvata macrostoma Mörch, 1864.

Cincinna (Sibirovalvata) sibirica middendorffi Starobogatov & Zatravkin, 1985

Original source: Starobogatov and Zatravkin 1985: 1158–1159: fig. 7 (attributed to Moskvichera, but ICZN Art. 50.1.1 is not satisfied).

Type locality: Amur river, Siberia, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

"Valvata miliaria Ziegler" mentioned in Frauenfeld (1863: 1027)

One of the many label names of Ziegler and Parreys (see above at *Valvata impura*) for *Amnicola miliaria* Parreys, today *Pseudoamnicola miliaria* (Frauenfeld, 1863) (**Amnicolidae**).

+ Valvata minima Hislop, 1859 (non Fuchs, 1877)

Original source: Hislop 1859: 170, pl. 5: fig. 13.

Type horizon: Tertiary.

Type locality: Little Tisti, Karwad, Butárá, East India.

+ Valvata minima Fuchs, 1877 (non Hislop, 1859)

Original source: Fuchs 1877: 14, pl. 1: figs 25-27.

Type horizon: Lower Pliocene.

Type locality: Megara, Greece.

Remarks: This species is a junior homonym of *Valvata minima* Hislop, 1859. Wenz (1928b: 2439) listed *Valvata serbica* Brusina, 1902 as a junior synonym, which may be the next available name for *Valvata minima* Fuchs, 1877.

- "Valvata alpestris var. minor" mentioned in Favre (1922: 50) (nomen nudum with locality) Locality: Postglacial; Vallée de Joux, Kanton Waadt, Switzerland.
- + Valvata piscinalis var. minor De Stefani, 1877

Original source: De Stefani 1877: 305, pl. 18, fig. 4.

Type horizon: Pleistocene.

Type locality: Spoleto (Pananelli), Umbria, Italy.

Valvata baicalensis forma minor Lindholm, 1909

Original source: Lindholm 1909: 78.

Type locality: Lake Baikal, Russia.

Types unknown.

+ Valvata minuscula Yen & Reeside, 1946

Original source: Yen and Reeside 1946: 53: figs 1a-b.

Type horizon: Jurassic, Morrison Formation.

Type locality: Sublette County, Wyoming, USA.

Holotype: U.S. National Museum #103.799.

Valvata minuta Draparnaud, 1805 (non Valvata (Atropidina) minuta Yü, 1987)

Original source: Draparnaud 1805: 42, pl. 1: figs 36-38.

Type material: Naturhistorisches Museum Wien #1820/XXVI/21 7.33; cf. Binder (1967a), Bodon et al. (2001: 195), ICZN Opinion 2035 (2003).

Type locality: Source de l'Ain, France (cf. Bodon et al. 2001: 195).

Remarks: Detailed comment by Westerlund (1879). For shell variability cf. Binder (1967a). According to Binder (1967a), Bodon et al. (2000, 2001, ICZN Case 3146), and Callot-Girardi and Girardi (2013) a species of **Hydrobiidae** (*Hauffenia*, *Neohoratia*, *Islamia*).

+ Valvata (Atropidina) minuta Yü, 1987 (non Valvata minuta Draparnaud, 1805)

Original source: Yü XH 1987: 51, figs ?? (not seen, listed in Zoological Record 134(9): #4045).

Type horizon: Lower Cretaceous.

Type locality: Western Liaoning Province, China.

+ Costovalvata minuta Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 31, pl. 4: figs 18-20.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

Valvata minutissima Wattebled, 1884

Original source: Wattebled 1884: 131, pl. 6, fig. 8.

Type locality: "L'arroyo de Long-Xuyen", Mekong Delta, Vietnam.

"Valvata mischleri Kuščer, 1933" mentioned in Binder (1967a: 375).

Misspelling of V. michleri Kuščer, 1932.

+ Valvata moesiensis Jekelius, 1944

Original source: Jekelius 1944: 55, pl. 7: fig. 11-15.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Soceni (Banat), Romania.

Remarks: According to Bandel (2010: 94) this species should be placed in the heterobranch family **Cornirostridae** (also Valvatoidea/Ectobranchia) because of the slightly hyperstrophic protoconch.

### + Amnicola moguntina Boettger, 1884

Original source: Boettger 1884: 276. Considered a *Valvata* by Cossmann (1921: 110), cited and figured as + *Valvata moguntina* (Boettger, 1884) by Kókay (2006: 31, pl. 3: figs 6–7).

Type horizon: Lower Miocene, Burgidalian.

Type locality: Niederrad (part of Frankfurt/Main), Hessen, Germany.

### + Valvata (Cincinna) molnarae Soós, 1955

Original source: Bartha and Soós 1955: 58, pl. 5: figs 5–7.

Type horizon: Upper Miocene – Lower Pliocene.

Type locality: Kocs (Szendi-Street), Hungary.

#### + Valvata monachorum Bukowski, 1895

Original source: Bukowski 1895: 24 (name only), 31-33 (description), pl. 8: fig. 12.

Type horizon: Upper Miocene.

Type locality: marl and/or chalk near Monastery Skhiadi, Rhodus Island, Greece.

Remarks: Lectotype figured by Willmann (1981: 75, fig. 24A).

### "Valvata mongazoniana Servain" (nomen nudum)

Remarks: Mentioned in Hagenmüller (1884: 216 "cette coquille est inedité") and Westerlund (1886: 143), but never formally described.

#### + Valvata montanaensis Meek, 1876

Original source: Meek 1876: 591, textfigs 81-83.

Type horizon: Latest Cretaceous.

Type locality: mouth of Judith River on Upper Missouri, Montana, USA.

## Valvata montenegrina Glöer & Pesic, 2008

Original source: Glöer and Pesic 2008: 346–347: fig. 2/1–8) (shell, operculum, soft body).

Types: Holotype and 3 paratpyes in the Museum für Naturkunde, Berlin (#37584), paratypes also in private collection of P. Glöer.

#### Valvata monterosati Westerlund, 1883

Original source: Westerlund 1883: 170 (attributed to Cafici, but ICZN Art 50.1.1 is not satisfied).

Type locality: Sicily, Italy.

# "Valvata moquini" mentioned in Germain 1931 (fig. 745; p. 676).

Misspelling of Valvata moquiniana Dupuy, 1851 (no reasoning for a replacement name).

Valvata moquiniana Dupuy, 1851

Original source: Dupuy 1851: 586–587, pl. 28: fig. 15. The name was not attributed to Reyniés in the headline, only in a note in the synonymy. Description was also at least in parts by Dupuy. In footnote 2 Dupuy stated that Reyniés had provided a description, so maybe the Latin and French description could have been based on Reynies's notes. However in the past paragraph Dupuy compared the species with others, this was also part of the description and clearly written by Dupuy. Since Reyniés was not "alone" responsible for both, the name and the description, the authorship for the new name must be attributed to Dupuy alone under ICZN Art. 50.1.1.

Type locality: "les alluvions du Lot, près de Mende, Département de Lozère, France. Remarks: (1) Kobelt (1883: 20) stated that "Valv. moquiniana Reyn., abgebildet bei Moq. Tandon t. 41 f. 29–31, ist nach Fagot et de Malafosse (1878 Catalogue des Mollusques terrestres et fluviatiles vivants observés dans le département de la Lozère, p. 28) eine sehr verdächtige Art, nach einem Exemplar beschrieben - und seitdem nicht wieder gefunden worden" [Valv. moquiniana Reyn., depicted by Moq. Tandon t. 41 f. 29–31, is according to Fagot et de Malafosse (1878 Catalogue des Mollusques terrestres et fluviatiles vivants observés dans le département de la Lozère, p. 28) a suspicious species, based on a single specimen - and since then never found again].

- (2) Bodon et al. (2001: 202) suspected and Falkner and Boeters (2003:21) considered the taxon as a synonym of *Valvata globulina* Férussac, 1807 (but see there) and stated that syntypes are not available and that a re–description of *Valvata moquiana* and the designation of a neotype is necessary to clear up this often cited stygobiont taxon.
- (3) Type species of *Globuliana* Paladilhe, 1866 (**Hydrobiidae**) by subsequent designation under ICZN Art. 70.3. by Kadolsky (2008: 116).

"Amplovalvata morrisonensis" mentioned in Yen (1952: 27) (nomen nudum)

Valvata mucronata Menke, 1830

Original source: Menke 1830: 46 (nomen nudum), 139 (description).

Type locality: Island of Madeira, Portugal.

Remarks: Erroneously attributed to "Menke, 1845" at animal base www.animal-base.uni-goettingen.de/zooweb/servlet/AnimalBase/home/speciestaxon?id=15908

#### Valvata muelleri Leach, 1852

Original source: Leach 1852: 205–206 (original spelling mülleri; cf. ICZN Art. 32.5.2.1).

Type localities: "common in ponds around London and Bristol... some of the pond near Edinbough" and many others throughout Europe based on the synonymy list. Specification requires type selection.

Remarks: According to the original description "diameter 3/16 of an inch [= 4.7 mm]; animal black, tentacles, lateral appendages and lobes of the foot pale bluish—black, terminating with hyaline, eyes very black", probably *Bithynia tentaculata* (Linnaeus, 1758) (**Bithyniidae**).

+ Valvata multicarinata Hislop, 1859 (non Yen, 1946)

Original source: Hislop 1859: 170, pl. 5: figs 15a-b.

Type horizon: Tertiary.

Type locality: Little Tisti, Karwad, Butárá, East India.

Remarks: The valvatid nature of this taxon was doubted by Hrubesch (1965: 98).

+ Valvata multicarinata Yen, 1946 (non Hislop, 1859)

Original source: Yen 1946: 487-488, pl. 76: fig. 1.

Type horizon: Pliocene.

Type locality: Honey Lake, Lassen County, California, USA.

Remarks: A junior homonym of *Valvata multicarinata* Hislop, 1859, thus replaced by *Valvata idahoensis* Taylor, 1981 (see there).

+ Liratina multicarinata Yü, 1974

Original source: Yü 1974: 373, pl. 198: figs 7-9.

Type horizon: Lower Jurassic.

Type locality: Jiangyou, Sichuan Province, southwest China.

+ Paludina multiformis Zieten, 1830

Original source: Zieten 1830: 40, pl. 30: figs 7-10. Attributed to Bronn, but ICZN

Art. 50.1.1 is not satisfied.

Type horizon: Middle Miocene.

Type locality: Steinheim Basin; Baden-Württemberg, Germany.

Remarks: (1) + *Valvata multiformis* according to Ludwig v. Buch (1837: 98). Currently regarded as synonym to *Gyraulus trochiformis* (Stahl, 1824) (**Planorbidae**). This is the famous species, on which Hilgendorf's (1863, 1866) descendence theory was established (e.g. Nützel and Bandel 1993; Glaubrecht 2012).

(2) Nomenclatural situation unclear: The name was made available (ICZN Art. 12.2.7, Glossary "taxon: a taxon encompasses al included taxa of lower rank"), but not based on types (Art 72.4.1), so without identity. Same situation as in *Helix draparnaldi* (ICZN Opinion 336 and 1924, name was regarded as available) and *Helix barbata* (Op. 1691, name was not regarded as available). It is recommended that this gap should be closed in the next edition of the Code, preferably in a sense that ICZN Art. 74.2.1 will be amended to rule that such names should be based on all types of the included subordinate variants.

Helix nana Megerle von Mühlfeld, 1824 (non Helix nana Pennant, 1777 from Britain; non Helix spiriplana var. nana Mousson, 1861: 125)

Original source: Megerle von Mühlfeld 1824: 220, pl. 8 (resp. 2 in reprint): figs 10a-b. ".... ebenfalls zur Gattung *Valvata* gehörige Schnecke" [likewise a snail belong to the genus *Valvata*], meant in the sense of a subgenus of *Helix*.

Type locality: not provided.

Remarks: According to figures identical to *Helix tricarinata* Megerle von Mühlfeld, 1824 (see there) and probably a synonym to *Valvata cristata*.

+ Valvata nana Meek, 1873 (non Westerlund, 1886; non Li, 1984)

Original source: Meek 1873: 507–508.

Type horizon: Cretaceous.

Type locality: Carleton's coal mine, Coalville, Utah, USA.

Valvata nana Westerlund, 1886 (non Meek, 1873, non Li, 1984) (under subgenus Tropidina)

Original source: Westerlund 1886: 141.

Type locality: Zealand, Denmark.

Syntype (1 specimen) in Naturalhistoriska Museet Göteborg, Sweden (AN 4679), and (1 specimen) in Swedish Museum of Natural History (AN 14: 96) figured by Vinarski et al. (2013b: fig. 4C).

Remarks: A junior homonym of Valvata nana Meek, 1873.

+ Valvata nana Li, 1984 (non Meek, 1873; non Westerlund, 1886)

Original source: Li 1984: 7, pl. 1: figs 23-28.

Type locality: Lower Tertiary; Lingboa Basin of Henan Province, China.

Remarks: A junior homonym of Valvata nana Meek, 1873.

Valvata naticina Menke, 1845

Original source: Menke 1845: 129.

Type locality: "Hungaria, ad Pestinum" [Danube at Budapest], Hungary.

Types: Menke's collection was dispersed after his death (Dance 1986).

Remarks: Currently considered as *Borysthenia naticina* (Menke, 1845). For anatomy, histology, and reproduction biology see Niero and Bodon (2011) and Hawe et al. (2013).

+ Protovalvata naticiformis Pană, 2000

Original source: Pană 2000: 89, pl. 5: figs 22-29.

Type horizon: Lower Creatceous, Barremian and Berriasian.

Type locality: Ostrov - the southern border of Bugeac Lake, Romania.

+ Valvata neglecta Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 35-38.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Rădmănești, Romania.

+ Valvata nevadensis Taylor, 1981

Original source: Taylor and Smith 1981: 357, pl. 3: fig. 7-12.

Type horizon: Pliocene.

Type locality: Honey Lake, Lassen County, California, USA.

### + Valvata vanciana var. neyronensis Locard, 1883

Original source: Locard 1883a: 22.

Type horizon: Middle Pliocene, Plaisancien.

Type locality: Bas Neyron, Département de Ain, France.

### Valvata nilotica Jickeli, 1874

Original source: Jickeli 1874: 233–235, pl. 7: fig. 29a-c.

Type locality: Mahmudi Canal, Nile river near Alexandria, Egypt.

### "Valvata nitens Westerlund, 1877" (GNI, ION)

Possibly confused with *Helix nitens* Michaud, 1831 in Westerlund (1886: 64), currently regarded as *Aegopinella nitens* (Michaud, 1831) (**Zonitidae**).

### "Valvata nitida" (GNI)

Probably an erroneous combination of *Planorbis nitida* Müller, 1774, currently considered as *Segmentina nitida* (Müller, 1774) (**Planorbidae**).

#### Valvata bicarinata normalis Walker, 1902

Original source: Walker 1902: 125: fig. 6.

Type locality: Muscatine, Iowa and Utica, Illinois, USA.

Remarks: Radula shown in Baker (1928: 20).

#### Valvata nowshahrensis Glöer & Pešic, 2012

Original source: Glöer and Pešic 2012: 38, figs 14a-c.

urn:lsid:zoobank.org:act:944E6EE3-B23C-43FB-A305-882A4D4CF3D9

http://species-id.net/wiki/Valvata\_nowshahrensis

Type locality: Mazandaran Province, Nowshahr City, pond near the Caspian Sea, 51°31′E, 36°38′N, 18 June 2005; Iran.

Holotype Zoological Museum Hamburg #79376.

# Valvata (Liratina) piligera var. nudicarinata Lindholm, 1924

Original source: Lindholm 1924: 217.

Type locality: Lake Baikal, Russia.

Lectotype designated by Sitnikova et al. (1983) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg; Nr. 96 in systematic catalogue.

# Valvata micra var. nugax Pilsbry & Ferriss, 1906

Original source: Pilsbry and Ferriss 1906: 173, pl. 9: figs 6.

Type locality: Guadeloup River, Texas, USA.

Remarks: On basis of anatomy Hershler and Longley (1986) classified this taxon in *Phreatodrobia* Hershler & Longley, 1986 (**Hydrobiidae**).

Valvata sincera var. nylanderi Dall, 1905

Original source: Dall 1905: 122, pl. 1: figs 7–9.

Type locality: Aroostook Co., Maine, USA.

Holotype: U.S. National Museum #150617.

Remarks: Radula shown by Baker (1928a: 26).

### + Amplovalvata obliqua Pan, 1982 (in Guo et al. 1982)

Original source: Guo et al. 1982: 33, pl. 13: figs 4-5.

Type horizon: Middle Jurassic.

Type locality: Atlas Shanganning, China.

#### Nerita obtusa "Müll." Studer, 1789

Original source: Studer 1789: 391 (presented as "N. obtusa MULL. 358 sive Piscinalis")

Remarks: Studer 1789: 391 established the new name and provided a bibliographical reference to Müller (1774: 172; No. 358 in Müller's list). Müller (1774) described *Nerita piscinalis* (= currently *Valvata piscinalis* (Müller, 1774)). Studer's (1789) name *Nerita obtusa* was made available under ICZN Art. 12.2.1. The types could be those of Müller's (1774) presentation (from Fridrichsdal, Denmark) or those from Switzerland to which Studer had had access.

### + Valvata (Cincinna) obtusaeformis Lörenthey, 1906

Original source: Lörenthey 1906: 174, pl. 3: figs 20a, b.

Type horizon: Upper Miocene, Pannonian.

Type locality: Öcs, north of Lake Balaton, Hungary.

## Cyclostoma obtusum Draparnaud, 1801

Original source: Draparnaud 1801: 39–40; figured as *Valvata obtusa* by Brard (1815: p. 190, pl. 6: fig. 17).

Type locality: "France septemtrionale".

Types possibly in Naturhistorisches Museum Vienna (Kantor et al. 2011: 69).

Remarks: Draparnaud (1805: 101) cited *Nerita piscinalis* as a senior synonym of *Cyclostoma obtusum*, among other synonyms.

# Valvata (Atropidina) ochridana Poliński, 1929

Original source: Poliński 1929: 136–137.

Type locality: According to Radoman (1985: 115): "Lake Ohrid, in the *Chara* zone in the Ohrid gulf", Macedonia.

Remarks: Type species of *Pseudohoratia* Radoman, 1967 (**Hydrobiidae**), see Kabat and Hershler (1993: 46) and Bodon et al. (2001: 150).

#### + Valvata octonaria Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 5–8. Referred to Brusina (1894: 181), a nomen nudum.

Type horizon: Upper Miocene, Pannonian, horizon of Lyrecaea (Melanopsis).

Type locality: Lake Balaton, Tihany, Hungary.

### + Valvata (Valvata) simplex oecsensis Soós, 1934

Original source: Soós 1934: 189, fig. 1 (as Valvata öcensis).

Type horizon: Upper Miocene, Upper Pannonian.

Type locality: Öcs, north of Lake Balaton, Remarks: SEM of shell and (typically valvatid) protoconch were depicted by Harzhauser and Binder (2004: 10, pl. 3: figs 9–11).

### + Valvata ogerieni Locard, 1883

Original source: Locard 1883a: 131, pl. 4: figs 1–3.

Type horizon: Middle Pliocene.

Type locality: Le Villard, Domsure, Département de l'Ain, France.

Remarks: Cited as "Valvata ogerieni Loc." in Chaignon (1893: 611), showing that the paper by Locard (1883a) was indeed published in 1883 rather than in 1888 as stated by Wenz (1923: 115).

## "Valvata olgae" mentioned in Sidiropoulou (2003: 34-35, fig. 11)

Horizon: Pliocene-Pleistocene.

Locality: Ptolemaida, West Macedonia, Greece.

Remarks: This PhD–Thesis PhD–Thesis, in which 35 species are ostendibley described, does not meet the conditions of ICZN Art. 8.1.3 and 9.9. Accordingly, this name is not available.

# Valvata (Pseudomegalovalvata) olkhonica Bekman & Starobogatov, 1975

Original source: Bekman and Starobogatov 1975: 94: fig. 1B.

Type locality: Kharin-Irgi Bay (Oikhon Gates) (Baikal Lake), depth 32-39 m, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue.

#### Valvata lewisi var. ontariensis Baker, 1931

Original source: Baker 1931: 119-121.

Type locality: Shakespeare Island Lake, Ontario, Canada.

Types: Museum of Natural History University of Illinois #Z31241; Academy of Natural Sciences of Drexel University, Philadelphia #153471.

Remarks: According to Hanson et al. (2002) a loosely coiled form of *Valvata lewisi* Currier, 1868.

# "Valvata sincera ontariensis Baker, 1931" (WMSDB)

Erroneous spelling of Valvata lewisi var. ontariensis Baker, 1931

"Valvata opaca" www.naturamediterraneo.com/forum/topic.asp?TOPIC\_ID=40300 at the "Check-list Pen. Iberica con sinonimie"

Probably confused with *Paludinella opaca* M. von Gallenstein, 1848, currently regarded as a *Bythinella* (**Hydrobiidae**).

### + Valvata oregonensis Hanna, 1922

Original source: Hanna 1922: 11–12, pl 3: figs 1–18, pl. 4: figs 1–4.

Type horizon: Pliocene.

Type locality: Pliocene; Warner Lake Beds, Oregon, USA.

Holotype figured at http://en.wikipedia.org/wiki/Valvata\_oregonensis

Remarks: Taylor (1966: 132) synonymized the taxon with *Valvata whitei* Hannibal, 1910, whereas Pierce (1993) considered two species.

#### + Valvata orientalis Fischer, 1866

Original source: Fischer 1866: 345, pl. 6: fig. 7.

Type horizon: Upper Miocene.

Type locality: Sarayköy (= Saraïkoï) near Denizli (vallée du Méandre), western Asian, Turkey.

#### + Valvata ottiliae Penecke, 1886

Original source: Penecke 1886: 37, pl. 10 (resp. 7 in reprint): figs 1–2.

Type horizon: Pliocene - Pleistocene.

Type locality: Dacian-Romanian; Repušnica, southeast of Zagreb, Croatia.

Remarks: Stefanescu (1896: 125) considered this species a junior synonym of *Valvata balteata* Brusina, 1897.

# "Valvata ouscubakus Nykk., 1895"

Error probably caused by text recognition software pro "Valvata piscinalis Müll. 1774" attributed at http://content.lib.washington.edu/ to fig. 66 for Cooke (1895).

# + Valvata (Costovalvata) pagana Bulić & Jurišić, 2009

Original source: Bulić and Jurišić 2009: 143, pl. 3, figs 9-10.

Type horizon: Lower Miocene.

Type locality: Crnika, Island of Pag, Croatia.

## + Valvata palmotići Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 1-4.

Type horizon: Pliocene – Pleistocene, Dacian-Romanian.

Type locality: Mali Poganac near Lepavina, Croatia.

"Valvata piscinalis var. paludinaeformis" mentioned in Braun (1843, 144) (nomen nudum with locality)

Horizon: Tertiary.

Locality: Mainzer Becken; Germany.

### "Valvata palustris" (GNI)

Possibly an erroneous combination for *Lymnaea palustris* Müller, 1774, currently considered as *Stagnicola palustris* (Müller, 1774) (**Lymnaeidae**).

### Valvata (Cincinna) pamirensis Starobogatov, 1972

Original source: Starobogatov 1972: 170-171: fig. 9.

Type locality: Gorno-Badakhshan Autonomous Region, Shaimak, 7 km from Kyzyl-Ravat, warm spring on right bank of the Aksu River, Tajik SSR.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Remarks: Genital details are shown by Sitnikova (1983: fig. 1/4).

"Valvata panagile" mentioned in Sidiropoulou (2003: 41-42, fig. 16).

Locality: Pliocene – Pleistocene; Ptolemaida, West-Macedonia, Greece.

Remarks: This PhD–Thesis PhD–Thesis, in which 35 species are ostendibley described, does not meet the conditions of ICZN Art. 8.1.3 and 9.9. Accordingly, this name is not available.

# Valvata panormitana Locard, 1889

Original source: Locard 1889: 51 (footnote: attributed to Bourguignat, but ICZN Art. 50.1.1 is not satisfied).

Type locality: near Palermo, Sicily, Italy.

## Valvata parva Locard, 1889

Original source: Locard 1889: 50 (footnote: attributed to Bourguignat, but ICZN Art. 50.1.1 is not satisfied).

Type locality: on la trouve à Viareggio, Italy.

# + Valvata parviumbilicata Wang, 1977 (in Yü and Wang 1977)

Original source: Yü and Wang 1977: 15–16, pl. 1: figs 17–19.

Type horizon: Upper Cretaceous.

Type locality: Jiangsu Province, China.

# + Valvata parvula Meek & Hayden, 1856 (non Deshayes, 1862)

Original source: Meek and Hayden 1856: 123, also listed by Meek and Hayden (1876: 591 with a detailed description of the species but with clear reference to Meek and Hayden 1856).

Type horizon: Tertiary.

Type locality: "3 miles below Fort Union" (a historical post-side) on the Missouri River at the North Dakota/Montana border, USA.

Remarks: Seemingly replaced by + *Valvata subparvula* Cossmann, 1921. Cossmann (1921: 170, first line and footnote) refers to *Valvata parvula* as listed by Meek and Hayden (1876: 591) and thus later than *Valvat parvula* Deshayes, 1862 – which is not the case, however. *Valvata parvula* Meek & Hayden, 1856 still is a valid name.

+ Valvata parvula Deshayes, 1862 (non Meek & Hayden, 1856)

Original source: Deshayes 1861–1863, Vol. 2: 526, pl. 36: figs 12–14.

Type horizon: Upper Pliocene.

Type locality: Jonchery, Gueux, Rilly, Basin de Paris, France.

Remarks: Replaced by + Valvata (Cincinna) joncheryensis Wenz, 1930: 65 (see there).

Valvata (Megalovalvata) lauta var. parvula Kozhov, 1936 (not + Valvata parvula Meek & Hayden, 1856, not + Valvata parvula Deshayes, 1862)

Original source: Kozhov 1936: 25.

Type locality: Davsha Inlet, 9 fathoms (eastern coast of northern Baikal), Russia.

Lectotype designated by Sitnikova et al. (1983) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg; Nr. 3 in systematic catalogue under the name.

Valvata humeralis var. patzcuarensis Pilsbry, 1899

Original source: Pilsbry 1899: 392.

Type locality: Lago de Patzcuaro, Michoacán, Mexico.

Remarks: Probably a lake variety of *Valvata humeralis* Say, 1829. Pilsbry (1903) himself admitted that the taxon is a junior synonym (published Oct. 1899) of *Valvata humeralis pilsbryi* Martens, 1899 (published Sept. 1899).

"Valvata humeralis var. patzcuaroensis Pilsbry, 1899"

Misspelling of *Valvata humeralis* var. *patzcuarensis* Pilsbry, 1899 at page 195 at www.flmnh.ufl.edu/malacology/mexico-central\_america\_snail\_checklist/part1.htm

+ Valvata paula Pierce, 1993

Original source: Pierce 1993: 980, figs 1.1 - 1.4.

Type horizon: Upper Oligocene - Lower Cabbage.

Type locality: Powel County, Montana, USA.

Holotype at http://invertebratepaleontology.biodiversity.ku.edu/galleries/kumip-holotypes-pierce-1993#photo-1 (first photo).

+ Valvata (Cincinna) paviai Schlickum & Strauch, 1979

Original source: Schlickum and Strauch 1979: 11-12, pl. 1: fig. 5.

Type horizon: Pliocene, brown coal area.

Type locality: Bergheim (abandoned opencast mine Fortuna-Garsdorf), Nordrhein-Westfalen, Germany.

### Valvata pedderi Smith, 1973

Original source: Smith 1973: 430.

Type locality: Lake Edgar (part of Lake Pedder), Tasmania.

Holotype: Tasmanian Museum #E8543.

Type species of *Striadorbis* Ponder & Avern, 2000 (Euthyneura - **Glacidorbidae**), see Ponder and Avern (2000: 339).

### + Valvata peneckei Brusina, 1892

Original source: Brusina 1892: 167. Figured by Brusina (1902: pl. 13: figs 18–21). Type locality: Pliocene, Paludina–layers; Repusnica, Slavonia.

Remarks: Replacement name for *Valvata bifrons* Neumayr, 1875 sensu Penecke (1886: 37).

## + Cincinna penglaizhenensis Pan, 1982

Original source: Pan 1982: ??, figs 22–23 (not seen, data from online type catalogue of Nanjing Institute).

Type horizon: Jurassic, Penglaizhen.

Type locality: Penglai town, Sichuan Basin, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=53435

# "Valvata penthica" (GNI, ION).

Probably an erroneous combination for Viviparus fasciatus var. penthica Servain, 1884.

## Valvata tricarinata perconfusa Walker, 1917

Original source: Walker 1917: 36.

Remarks: Replacement name for the preoccupied *Valvata confusa* Walker, 1902, from North America, not *Valvata confusa* Westerlund, 1897, from Siberia.

# "Valvata tricarinata perconfuxa Walker" (google)

Misspelling of Valvata tricarinata perconfusa Walker, 1917.

# Valvata bicarinata perdepressa Walker, 1906

Original source: Walker 1906: 130, pl. I: figs 15-16.

Type locality: South shore (at Michigan City) of Lake Michigan, Indiana, USA.

Remarks: Vernacular name: purplecap valvata.

# + Liratina peronata Pan, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 148, pl. 2: figs 11-17.

Type horizon: Middle Jurassic.

Type locality: Junggar Basin, Fukang County Dahonggou, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=36285

"Valvata perroquini" mentioned in Hagenmüller (1884: 216)

Remarks: clearly refers to Heterocyclus perroquini Crossé, 1872 (Hydrobiidae).

"Valvata persimilis" mentioned in Férussac and Férussac (1807: 128–129) (nomen nudum)

### Valvata petiti Crosse, 1872

Original source: Crosse 1872: 157, 353–354, pl. 16, fig. 7.

Type locality: Lac de la Grande, Vallée de Kaoris, New Caledonia.

Remarks: According to Solem (1961: 429) a synonym of *Heterocyclus perroquini* Crosse, 1872: 156 (**Hydrobiidae**).

### Valvata petrettinii Innes, 1884

Original source: Innes 1884: 349 (attributed to Bouguignat, but ICZN Art. 50.1.1 is not satisfied).

Type localities: "...dans les canaux d'Alexandrie et de Rosette, ...... dans les sables de Mandarah, entre Ramleh et la cap Aboukir", all Egypt.

### + Valvata (Cincinna) petronijevici Miloshevich, 1973

Original source: Miloshevich 1973: 143, textfig. 1. Also figured by Miloshevich (1984: pl. 1: figs 11–17).

Type horizon: Pliocene, Kosovo Series (topmost horizon).

Type locality: Pećka Bistrica stream outlet, Drsnik region, Metohija Basin, Kosovo.

## Valvata pharaonum Innes, 1884

Original source: Innes 1884: 351.

Type localities: "Bords du lac Moeris, au Fayoun", Egypt.

# "Valvata phialensis" mentioned in Şereflişani et al. (2009: 291/fig. 2)

Probably an erroneous combination of *Bithynia phialensis* (Conrad, 1852) and *Valvata piscinalis* (Müller, 1774).

# + Valvata (Aegaea) philippsoni Oppenheim, 1891

Original source: Oppenheim 1891: 473, pl. 28, figs 6a-d.

Type horizon: Pleistocene, Chaudian (cf. Gillet et al. 1979).

Type locality: Arkitsa near Livanates, Greece.

# + Valvata alpestris var. piattii Adami, 1881

Original source: Adami 1881: 198.

Type horizon: Post-Pliocene.

Type locality: Torbiera di Polada, Northern Italy.

# "Valvata piacinalia" (GNI, ION)

Error caused by text recognition software pro Valvata piscinalis (Müller, 1774).

+ Valvata (Atropidina) pileiformis Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 29-30, pl. 3: figs 10-15.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

Valvata (Liratina) baicalensis var. piligera Lindholm, 1909

Original source: Lindholm 1909: 78.

Type locality: Lake Baikal, around Island Olchon, Russia.

Lectotype designated by Sitnikova et al. (1983) and deposited at Zoological Institut of the Russian Academy of Sciences, St. Petersburg; Nr. 29 in systematic catalogue.

Remarks: Kantor et al. (2011: 73) considered the species as *Megalovalvata piligera piligera* (Lindholm, 1909). Spawn depicted at: http://userpage.fu-berlin.de/~rpeter/deutsch/repro/ei\_valva.html

Valvata humeralis var. pilsbryi Martens, 1899

Original source: Martens 1899: 427.

Type locality: Lago de Patzcuaro, Michoacán, Mexico.

Nerita piscinalis Müller, 1774

Original source: Müller 1774: 172 (Nr. 358).

Type locality: "In piscina horti Fridrichsdalenjis frequens, nec unquam alibi reperi" [frequent in fish ponds of Fridrichsdal], i.e. probably near Copenhagen, Denmark.

Types possibly in Zoological Museum Copenhagen (Kantor et al. 2011: 70).

Remarks: (1) Anatomy studied by Bernard (1888, 1890) and Cleland (1954)

- (2) Ontogeny studied by Rath (1986), for life cycle see Myzyk (2007)
- (3) SEM photos of shell and radula provided by Falniowski (1990) and Anistratenko et al. (2010: fig. 5A–D)
- (4) Live photos at: http://www.allesumdieschneck.de/html/valvata\_piscinalis\_piscinalis.html
- + Valvata piscinaloides Michaud, 1855

Original source: Michaud 1855: 48 (in issue of journal, 16 in reprint), pl. 5: figs 20-21.

Type horizon: Lower Pliocene, Zanclean.

Type locality: Hauterive, Département de Drôme, France.

"Valvata piscinnalis Müll." mentioned in Férussac and Férussac (1807: 75) Misspelling of Valvata piscinalis (Müller, 1774).

+ Valvata pisidica Oppenheim, 1918

Original source: Oppenheim 1918: 206-207, pl. 7: figs 4-6.

Type horizon: Upper Pliocene - Lower Pleistocene.

Type locality: Eflatun Pınar (= Efflatum-Bunar) at Beysehir Gölü, West-Turkey.

### + Protovalvata plana Pană, 2000

Original source: Pană 2000: 89, pl. 5: figs 20-21.

Type horizon: Lower Cretaceous, Barremian.

Type locality: Ostrov - the southern border of Bugeac Lake (Lake Gârlita), Northern Dobruja, Romania.

### + Valvata planconcava Pavlović, 1928

Original source: Pavlović 1928: 62.

Type horizon: Upper Miocene, Pannonian (Serbian).

Type locality: Karagača stream (Vrčin SSE Belgrade), Serbia.

### "Valvata plaiti" (GNI)

Error caused by text recognition software pro + Valvata alpestris var. piattii Adami, 1881.

### + Valvata planibasis Cossmann, 1899

Original source: Cossmann 1899a: 349–350 (in issue of journal, 44–45 in reprint), textfig. 5.

Type horizon: Eocene.

Type locality: Bois-Gouët, Lower Loire, Bretagne, France.

### Valvata planorbis Draparnaud, 1801

Original source: Draparnaud 1801: 42.

Type locality: France.

Remarks: Generally (e.g. Menke 1845) regarded as synonym to *Valvata cristata* Müller, 1774.

## Valvata planorbulina Paladilhe, 1867

Original source: Paladilhe 1867b: 49-50, pl. 3: figs 23-26.

Type locality: «dans des alluvions du Lez», France.

Types not traced.

# Valvata planulata Innes, 1884

Original source: Innes 1884: 351.

Type locality: "Bords du lac Moeris", Egypt.

Remarks: Innes (1884: 351) refers to "Bourguignat, Spec. Moll., n°. 197, 1878". However, as outlined by Connolly (1934), the latter works was never published.

# + Valvata virens platyceps Pilsbry, 1935

Original source: Pilsbry 1935: 565, text fig. 2c-d.

Type horizon: Pliocene.

Type locality: Kettleman Hills, California, USA.

+ Valvata saulcyi pliocaenica Schütt, 1988

Original source: Schütt 1988: 133, pl. 3: fig. 26.

Type horizon: Lower Pleistocene (?).

Type locality: left border of Orontes river (Nahr al-Asi), 12 km south of Ğisr aš-Šugur, Syria.

+ Cincinna (Cincinna) piscinalis pliocaenicus [sic] Gozhik, 2007 [should be pliocaenica, since Cincinna is feminine]

Original source: Gozhik 2007: 78, pl. 68: figs 1–4.

Type horizon: Pliocene (Alluvium XI. terrace).

Type locality: river Pruth near Kuzhbovka; Moldavia.

"C. (C.) pliocalnicus" mentioned in Gozhik (2007: 122)

Misspelling of + Cincinna (Cincinna) piscinalis pliocaenicus Gozhik 2007.

"Valvata (Ochridotropina) [sic] polinskii" in Hadžišče (1955: 176)

As outlined by Hadžišče 1956: 58 (footnote), this name is based on an error and should be *Valvata* (*Ohridotropina*) *relicta* Poliński, 1929.

+ Valvata politioanei Jekelius, 1944

Original source: Jekelius 1944: 55, pl. 7: figs 20–23.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Soceni (Banat), Romania.

+ Valvata simplex var. polycincta Lörenthey, 1906

Original source: Lörenthey 1906: 167, pl. 1: fig. 17, pl. 3: fig. 21.

Type horizon: Upper Miocene, Upper Pannonian.

Type locality: Tihany, Lake Balaton, Hungary.

+ Valvata polystriata Pavlović, 1928

Original source: Pavlović 1928: 61.

Type horizon: Upper Miocene, Pannonian (Serbian).

Type locality: Karagača stream (Vrčin SSE Belgrade), Serbia.

Valvata pornae Locard, 1889

Original source: Locard 1889: 25 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type localities: (1) Toscana; (2) near St. Germano, Campania, both Italy.

+ Cincinna (Atropidina) cobalcescui porrecta Gozhik, 2007

Original source: Gozhik 2007: 80, pl. 72: figs 1-2.

Type horizon: Upper Miocene - Lower Maeotian.

Type locality: Lower Dnepr, Ukraine.

#### + Valvata praecursor Tate, 1873

Original source: Tate 1873: 348, pl. 12: fig. 9.

Type horizon: Jurassic, Infra-Oxfordian.

Type locality: Prince Charles Cave, Portree, Skye Island, Scotland, U.K.

### + Planorbis praecursoris White, 1895

Original source: White 1895: 46, pl. 6: figs 4–7. As + *Valvata praecursoris* (White) cited and figured in Yen (1950a: 14, pl. 2: figs 1a–g).

Type horizon: Cretaceous.

Type locality: 20 miles north of Cokeville, Wyoming, USA.

### + Cincinna (Cincinna) praepiscinalis Gozhik, 2007

Original source: Gozhik 2007: 75. Was before listed and figured as "*Valvata* ex gr. *piscinalis*" in Gozhik and Prysjazhnjuk (1978: 65, pl. 1: figs 5–6).

Type horizon: Middle or Upper Miocene – Sarmatian.

Type locality: Mykhailivka (= Michailovka), Ukraine.

### + Valvata lewisii precursor Baker, 1928

Original source: Baker 1928: 136-137.

Type horizon: Pleistocene, Lower Wisconsin.

Type locality: Fulton County, east of Havana, Illinois, USA.

# "Valvata priscinalis Wood 1848" (EOL: Location Great Britain).

Misspelling of Valvata piscinalis (Müller, 1774).

# + Valvata (Cincinna) proavia Huckriede, 1967

Original source: Huckriede 1967: 167, pl. 23: figs 15a-27b, 42a-43b, pl. 24: figs 2a-4b.

Type horizon: Upper Jurassic, Middle Kimmeridge.

Type locality: Kahlberg in the Harz, Germany.

# + Gyraulus procerus Russell, 1952

Original source: Russell 1952: 131–132, textfig. 10, pl. 19, figs 3–13. Cited as *Valvata procera* (Russell, 1952) in Ross (1960: 70: "*Gyraulus procerus* Russell is apparently a *Valvata*,..") and in Pierce et al. (2001).

Type horizon: Upper Eocene / Lower Oligocene, Kishenehn formation (Ross 1960: 69).

Type locality: valley of North Fork of the Flathead River in southeastern British Columbia, Canada.

# Valvata profunda Clessin, 1887

Original source: Clessin 1887: 776: fig. 509.

Type locality: Lake Garda, Trentino, Italy.

Valvata (Pseudovalvata) profundicola Bekman & Starobogatov, 1975

Original source: Bekman and Starobogatov 1975: 95: fig. 1C.

Type locality: near Bolsodej Cape [Baikal Lake], depth 300 m, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Remarks: Genital details are depicted by Sitnikova (1983: fig. 1/5), SEM of shell, protoconch, and radula is shown by Röpsdorf and Riedel (2004: fig. 7A–I).

+ Valvata (Megalovalvata) protopiligera Martinson, 1961

Original source: Martinson 1961: 247, pl. 22: figs 9–10.

Type horizon: ??

Type locality: Tarbagatay, Zabaykalsky Krai (=Trans-Baikal Territory), Eastern Sibiria, Russia.

- "? Valvata proxima (Fuchs)" mentioned in Müller (1989: 576, legend to plate 6: fig. 12). Confusion with ? Bithynia proxima Fuchs (1870b: 534, pl. 20: figs 34–36).
- + Cincinna (Cincinna) prutulense [sic] Gozhik, 2007 [should be prutulensis, since Cincinna is feminine]

Original source: Gozhik 2007: 77, pl. 73: figs 1–4.

Type horizon: Pliocene (Alluvium).

Type locality: river Yalpug near the village Kotlovina (Bolboaka), district of Odessa, Ukraine.

+ Valvata pseudoadeorbis Sinzov, 1880

Original source: Sinzov 1880: 14, pl. 8: 53–55 (for author spelling of author see reference list).

Type horizon: Upper Miocene, Sarmatian.

Type locality: Simbirsk and Saratov governments, Russia.

Remarks: (1) + *Valvata pseudoadeorbis* Sinzov, 1880 from the Eastern Paratethys (like the type locality) has been recently considered to be a hydrobiid by Anistratenko O. and Anistratenko V. (2012: 121 footnote).

(2) "Valvata (Aphanotylus) pseudo-adeorbis Sinz. (?)" used in Papp (1939: 352) (Sarmatian, Vienna Basin), also figured by Papp (1974: 334, pl. 3: figs 3–4) has been described as + Valvata (Valvata) exotica Papp, 1954 (see there) and shows the typical valvatid protoconch (cf. Harzhauser and Kowalke 2002: 74 under Valvata pseudoadeorbis Sinzov).

"Valvata (?Aphanotylus) pseudoadeorboides Sinzow" mentioned in Wenz (1928b: 2463) Consistent misspelling of Valvata pseudoadeorbis Sinzow, 1880, but cited to "Sinzow, 1883: pages, 78 and 93".

+ Valvata pseudoalpestris Brusina, 1902

Original source: Brusina 1902: pl. 13: fig. 33.

Type horizon: Pliocene - Pleistocene, Dacian-Romanian.

Type locality: Rešetari, Slavonia, Croatia.

+ Valvata (Cincinna) piscinalis var. pseudoantiqua Settepassi, 1965 (in Settepassi and Verdel 1965)

Original source: Settepassi and Verdel 1965: 382.

Type horizon: Quaternary.

Type locality: C. Sisti (Pontecorvo), Southern Latium, Romania.

Valvata pulchella Studer, 1789 (in Coxe 1789)

Original source: Coxe 1789: 391.

Type locality: "Umgebung des Bielersee's in Wassergräben", Switzerland (Studer's specimens) and Rivière des Gobelins, Paris, France (specimens from Geoffroy 1767).

Remarks: *Valvata pulchella* Studer, 1789 was established without description, but with a reference to "Geofr. Ner. 4" (= Geoffroy 1767: 115) that made the name available under ICZN Art. 12.2.1. (although the latter work has been rejected for nomenclatorical purposes by ICZN Opinion 362). Boeters and Falkner (1998) considered this name as a junior synonym of *Nerita piscinalis* Müller, 1774. The name was subsequently used by Studer (1820: 91) and misapplied to a species that later turned out to be different (i.e. *Valvata studeri* Boeters & Falkner, 1998; see there). Forcart's (1957: pl. 4: fig. 22) lectotype designation for *Valvata pulchella* in Studer (1820) (also figured by Boeters and Falkner 1998: pl. 14: fig. 1) is invalid, because an unavailable name has no types at all.

## Valvata pupoidea Gould, 1841

Original source: Gould 1841: 226: fig. 155.

Type locality: Fresh Pond, Cambridge, Middlesex County, Massachusetts, U.S.A. Remarks: Type species of *Lyogyrus* Gill, 1863 (**Hydrobiidae** or **Amnicolidae**), cf. Walker (1918: 33), Berry (1943: 57) or Kabat and Hershler (1993).

### Nerita pusilla Müller, 1774

Original source: Müller 1774: 171 (Nr. 357).

Type locality: "in lacu Ruppinensi", Ruppiner See, Brandenburg, Germany.

Types unknown, possibly in Zoological Museum Copenhagen (Kantor et al. 2011: 73).

Remarks: Considered a Valvata by Menzel (1904a: 116).

# Valvata pusilla Piersanti, 1951 (non Martinson, 1961)

Original source: Piersanti 1951: 1-3, pl. 1.

Type locality: Frasassi cave system near San Vittore, Genga Ancona, Italy.

Remarks: According to Giusti et al. (1982) and Bodon et al. (2001: 176) now *Islamia pusilla* (Piersanti, 1951) (**Hydrobiidae**).

+ Valvata pusilla Martinson, 1961 (non Piersanti, 1951)

Original source: Martinson 1961: 247, pl. 22: figs 12–13.

Type horizon: ??

Type locality: Nemegt uul, Mongolia.

Valvata pygmaea C.B. Adams, 1849 (non Noulet, 1854; non Moore, 1867)

Original source: C.B. Adams 1849: 42-43.

Type locality: Island Jamaica.

Remarks: The types of the Museum of Camparative Zoology (Harvard) were studied and a lectotype was designated and figured by Johnson and Boss (1972: 213–214, pl. 41: fig. 6).

+ Valvata pygmaea Noulet, 1854 (non Adams, 1849; non Moore, 1867)

Original source: Noulet 1854: 55–56.

Type horizon: Middle Eocene.

Type locality: Molasse de Castellnaudary; Département de Tarn, France.

Remarks: An objective junior homonym of Valvata pygmaea Adams, 1849.

+ Valvata pygmaea Moore, 1867 (non Adams, 1849; non Noulet, 1854)

Original source: Moore 1867: 557, pl. 15: figs 5-6.

Type horizon: Lower Jurassic.

Type locality: Charterhouse Mine, South Wales, U.K.

Remarks: An objective junior homonym of Valvata pygmaea Adams, 1849.

+ *Liratina qikouensis* Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 33, pl. 4, figs 1–3.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

"Valvata raboi Anon 1889" (GNI)

Misspelling of Valvata raboti Westerlund, 1889.

Valvata piscinalis raboti Westerlund, 1889

Original source: Westerlund 1889: 1316 (footnote).

Type locality: Norvegia in Finmarkia orientali ad Klostervand (Flumen Pasvig.), Finland.

+ Valvata radiatula Sandberger, 1875

Original source: Sandberger 1875: 576, pl. 30: figs 7–7c.

Type horizon: Middle Miocene, Tortonian.

Type locality: Schwenditobel near Pfrungen, Baden-Württemberg, Germany.

+ Valvata radovanovići Pavlović, 1931

Original source: Pavlović 1931: 26, pl. 11: figs 27–30.

Type horizon: Upper Miocene- Pliocene ("Pontian Congeria-layers").

Type locality: Basin of Skopje, Macedonia.

+ Valvata (Turrivalvata) ranjinai Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 39–41.

Type horizon: Upper Pliocene-Lower Pleistocene, Romanian.

Type locality: Kindrovo, Slavonia, Croatia.

### Valvata regalis Locard, 1889

Original source: Locard 1889: 38 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type localities: (1) Königsee in Bavaria, Germany, (1) Lake Tristach near Lienz, East-Tyrol, Austria.

+ Valvata (Cincinna) rehetaiensis Youluo, 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 30-31, pl. 3: figs 16-21.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

Gyraulus (Carinogyraulus) relictus Poliński, 1929

Original source: Poliński 1929: 164.

Type locality: Lake Ohrid, Albania/Macedonia.

Remarks: German translation of Poliński (1929) by Poliński (1932): Valvatid nature has been shown by anatomy (Rath 1986: 89ff) and by molecular data (Hauswald et al. 2008).

# Valvata revoili Bourguignat, 1889

Original source: Bourguignat 1889: 189, pl. 8: figs 5-6.

Type locality: Market of Moguedoushou (Mogadishu), Somalia.

Remarks: Considered to be a **terrestrial species** (Mandahl-Barth in Brown 1965: 46). According to Van Damme (1984) this is probably a distinct species, but taxonomic status needs to be confirmed.

## Valvata rhabdota Sturany, 1894

Original source: Sturany 1894: 381, pl. 19(II): figs 18-20.

Type locality: near Ohrida in Lake Ohrid, 30 m (only dead shells), Macedonia.

Remarks: Valvatid nature has been shown by anatomy (Rath 1986: 111ff) an molecular data (Hauswald et al. 2008).

+ *Valvata ringentis* Youluo 1978 (name of author according to the type catalogues of Nanjing Institute)

Original source: Youluo 1978: 29, pl. 3: figs 4–6.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

## + Aphanotylus ristici Pavlović, 1931

Original source: Pavlović 1931: 26, pl. 11: figs 42–47. As *Valvata* (*Aphanotylus*) *ristići* (Pavlović, 1931) cited and figured in Milosević (1984: 10, pl. 1: fig. 1–5).

Type horizon: Pliocene-Pleistocene, Metohija Series (Levantin de Topelić).

Type locality: Topličane, Metohija basin, Kosovo.

#### + Valvata robusta Martinson, 1982

Original source: Martinson 1982: 70, pl. 16: figs 23-24.

Type horizon: Upper Cretaceous.

Type locality: exact location ??, Mongolia.

#### Vallonia rosalia Risso, 1826

Original source: Risso 1826: 102 (#237).

Type locality: Alpes maritimes.

Remarks: According to Küster (1852–1853: 85) a synonym of *Valvata piscinalis* (Müller, 1774). However, Küster cited Risso (1826: Pl. 3: fig. 30), where *Helix pulchella* Müller, 1774, currently *Vallonia pulchella* (Müller, 1774), was figured. Accordingly, *Vallonia rosalia* Risso, 1826 remains as the type species of *Vallonia* Risso, 1826, type genus of **Valloniidae**.

#### Valvata rothi Innes, 1884

Original source: Innes 1884: 347 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type localities: "Bords du lac Mariout, entre Ramleh et Alexandrie", Egypt.

#### + Valvata rothleitneri Bittner, 1884

Original source: Bittner 1884: 514, pl. 10: fig. 15.

Type horizon: Oligocene, Chattian.

Type locality: Trifail-Sagor (=Trbovlje-Zagorje), Slovenia.

# + Valvata rugaoensis Wang, 1977 (in Yü and Wang 1977)

Original source: Yü and Wang 1977: 15, pl. 1: fig. 14.

Type horizon: Upper Cretaceous.

Type locality: Jiangsu Province, China.

#### + Valvata sabaudiensis Maillard, 1884

Original source: Maillard 1884: 68-69, pl. 2: figs 12-13a,b.

Type horizon: Jurassic – Purbeckian.

Type locality: Villers-le-lac, Département Doubs, France.

Remarks: According to Huckriede (1967: 168), fig. 12 of the original description of Maillard (1884) shows another species. Bandel (1991: 22, pl. 3: figs 16–20) considered this species belonging to *Provalvata* (**Provalvatidae**).

## "Valvata var. sabnaticina Piaget, 1913" (ION, GNI)

Misspelling of Valvata piscinalis var. subnaticina Piaget, 1913.

## Valvata pulchella saghalinensis Miyadi, 1935

Original source: Miyadi 1935: 61, pl. 3: fig. 3.

Type locality: "along the shore of a lakelet Tyatya-numa on the western coast of South Sakhalin", Japan.

Holotype: According to Kantor et al. (2011: 70) deposited at Ôtsu Hydrobiological Station, now known as the Center for Ecological Research, Kyoto University.

### + Valvata (Valvata) salebrosa Meijer, 1990

Original source: Meijer 1990: 110, pl. 1: figs 3a-c.

Type horizon: Lower Pleistocene.

Type locality: Pit Maalbeek, Belfeld, province of Limburg, The Netherlands.

#### + Valvata salina Leonard, 1972

Original source: Leonard 1972: 1-2, figs 1-3.

Type horizon: Pleistocene.

Type locality: Saline river banks near Equality, Galatin County, Southern Illinois, USA.

# + Valvata (Turrivalvata) sarmatica Papp, 1954

Original source: Papp 1954: 24, pl. 4: figs 3, 4a-b.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Wiesen, Eisenstadt-Sopron Basin, Burgenland, Austria.

## + Valvata satira Fritzsche, 1924

Original source: Fritzsche 1924: 25, pl. 2: figs 8a, b.

Type horizon: Cretaceous.

Type locality: limestone of Yavi, North of province of Jujuy, Argentina.

Remarks: With a size of 12 mm and an oblique aperture this species is unlikely to be a valvatid.

## Valvata saulcyi Bourguignat, 1853

Original source: Bourguignat 1853: 68, pl. 2: fig. 41, 42.

Type locality: near Damascus, Syria.

Remarks: It remains to be verified, whether the specimens identified as *Valvata* saulcyi reported from Sicily (e.g. Welter-Schultes 2012a: 45) truly is the same species.

+ Valvata sayni Delafond & Depéret, 1893

Original source: Delafond and Depéret 1893: 47, pl. 4: fig. 3, 3a.

Type horizon: Lower Pliocene.

Type locality: Marnes de Saint-Jean-de Vieux, Departément de Ain, France.

Remarks: Attributed to an unpublished manuscript by Fontannes ("Diagnos. esp. nouv. p, IV, fig. 10"), who mentioned *Valvata sayni* without description or figure as a nomen nudum (Fontannes 1883: 440), but did not make it available. Listed with several further references by Wenz (1928b: 2449).

"Valvata scabrida" mentioned in Meek and Hayden (1860: 418) (nomen nudum)

Valvata scabrida Meek & Hayden, 1865 (under subgenus Tropidina)

Original source: Meek and Hayden 1865: 113, pl. 4: figs 2a-b. Referred as *Amplovalvata scabrida* in Yen (1952: 39, pl. 6: figs 2a-o).

Type locality: Jurassic beds near the sout-west base of Black Hills, USA.

Holotype: U.S. National Museum #316 (see Yen 1952: 39).

Valvata (Cincinna) piscinalis var. scharffi Westerlund, 1894

Original source: Westerlund 1894: 198.

Type locality: Dublin, Ireland.

+ Valvata (Valvata) schlosseri Royo Gómez, 1922 (repeatedly erroneously cited in www, e.g. WMSDB for 1992)

Original source: Royo Gómez 1922: 159, textfig. 19, pl. 11: figs 17-20.

Type horizon: Miocene.

Type locality: surroundings of Teruel, Spain.

Remarks: Considered synonymous to = *Valvata* cf. *vallestris* Fontannes by Schlosser (1907: 24, pl. 1: fig. 22), other authors think it probably a **hydrobiid**, *Islamia schlosseri* or *Neohoratia schlosseri*, cf. Albesa and Robles (2006).

Valvata schmidtii Menke, 1849

Original source: Menke 1849: 166-167.

Type locality: near Töplitz (Toplice), Unterkrain (Dolenjska), Slovenia.

Remarks: Radoman (1985: 44) placed the species as *Sadleriana schmidtii* (Menke, 1849) (**Hydrobiidae**).

Valvata schweinfurthi Innes, 1884

Original source: Innes 1884: 352 (attributed to Bourguignat, but ICZN Art. 50.1.1 is not met).

Type locality: "Bords du lac Moeris", Egypt.

Valvata nilotica var. scioana Pollonera, 1888

Original source: Pollonera 1888a: 82.

Type locality: Cimbisi district near Debra, Erhan, Ethiopia.

### + Valvata semigradata Pavlović, 1928

Original source: Pavlović 1928: 61.

Type horizon: Upper Miocene, Pannonian (Serbian).

Type locality: Karagača stream (Vrčin SSE Belgrade), Serbia.

### Valvata sequanica Locard, 1883

Original source: Locard 1883b: 49, detailed description by Locard (1889: 18–19; 1893b: 124).

Type locality: Rouen, France.

#### + Valvata serbica Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 44-49.

Type horizon: Upper Miocene – Lower Pliocene.

Type locality: Visoka (Negotin), Serbia.

Remarks: Wenz (1928b: 2439) listed *Valvata serbica* Brusina, 1902 as a junior synonym of *Valvata minima* Fuchs, 1877, the latter is a junior homonym of *Valvata minima* Hislop, 1859.

## + Valvata serpens Stefanescu, 1896

Original source: "Sabba" Ștefănescu 1896: 8, 122ff, pl. 10: figs 139-144.

Type horizon: Pliocene - Pleistocene, Romanian.

Type locality: Milcov ("Un seul gisement connu, dans les couches levantines de Roumanie, à Milcov, près de Slaltina, dans la vallée de l'Oltu"), Romania.

Remarks: The author quoted himself as the author of taxa "Sabba", but the last name on the title page is Stefanescu. Wenz (1928b: 2430) listed this name as a junior synonym of *Valvata crusitensis* Fontannes, 1886.

#### Valvata servaini Locard, 1889

Original source: Locard 1889: 15-16.

Type localities: Sur lees bordds des grands lacs ou étangs: La Maine à Angers; la Seine, à Marly, dans Seine–et-Oise; Argenteuil, près de paris; le délaissés de las Seine, près de Rouen; la canal de la Marne au Rhin; les environs de Lille, dans le Nord; les alluvions du Rhône, au nord de Lyon; le lac de la Négresse, près de Bayonne.

# + Valvata (Cincinna) shakengensis Yü & Zhang, 1982

Original source: Yü and Zhang 1982: 45, pl. 1: fig. 13-15.

Type horizon: Eocene.

Type locality: Zhuo Xian, Hebei, China.

+ Valvata (Cincinna) shansiensis Yü, 1965

Original source: Yü 1965: 45–46, pl.1: figs 1–7.

Type horizon: Middle - Upper Eocene.

Type locality: upper part of the Yuanchü Chun, Yuanchü, Shansi, China.

"Valvata shanxiensis Yu" mentioned in Yü (1984: 328)

Misspelling of + Valvata shansiensis Yü, 1965.

+ Valvata sibinensis Neumayr, 1875

Original source: Neumayr and Paul 1875: 78, pl. 9: figs 19a-d.

Type horizon: Pliocene - Pleistocene, Dacian-Romanian (*Paludina*–layer).

Type locality: Gromačnik, Croatia.

Valvata cristata var. sibirica Middendorff, 1851

Original source: Middendorff 1851: 299.

Type locality: Barnaul, Altai (on the basis of the lectotype), Western Siberia, Russia.

Lectotype was designated by Prozorova and Starobogatov (1986) and deposited in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

Remarks: Falkner et al. (2001) and Glöer (2002) considered *Valvata sibirica* Middendorf, 1851 and *Valvata frigida* Westerlund, 1873 to be conspecific. Genital details were provided by Sitnikova (1983: fig. 1/3).

+ Valvata sichuanensis Yü, Pan & Wang, 1974

Original source: Yü et al. 1974: 325, pl. 169: figs 9-10.

Type horizon: Upper Triassic.

Type locality: Sichuan Emei lotus leaf bend, Sichuan Province, China.

Holotype at: http://159.226.74.248:8000/viewSpeciDetailsNew.jsp?bbbh=22758 Remarks: In the Chinese online–catalogues listed as *V.s.* Pian & Wang, 1975 or *V.s.* 

Yu, Pian & Wang, 1975.

+ Cyclostoma simile Draparnaud, 1805

Original source: Draparnaud 1805: 34, pl. 1: fig. 15.

Type horizon: ??

Type locality: France.

Remarks: Cited as *Valvata simile* by Férussac and Férussac (1807: 128, nr. 2 resp. Nr. 164), and also often (incorrectly) cited as *Valvata simile* Daudebard, 1807.

Valvata tricarinata var. simplex Gould, 1841 (non Valvata simplex Fuchs, 1870)

Original source: Gould 1841: 226, fig. 156 (right hand figure).

Type locality: Vermont, North-Eastern USA.

+ Valvata simplex Fuchs, 1870 (non Valvata tricarinata var. simplex Gould, 1841) Original source: Fuchs 1870b: 535, Taf. 21: figs 4–6. Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: Bandel (2010: 105, pl. 8: figs 95–98) was unaware of the junior homonymy and classified the species as *Muellerpalia simplex* (Fuchs, 1870) (**Hydrobiidae**).

Valvata piscinalis simusyuensis Miyadi, 1935

Original source: Miyadi 1935: 60-61, pl. 3: fig. 2.

Type locality (from lectotype): Kitabettobu–numa (a lake), "Shumshir Island" [Kurile Islands], Russia.

Lectotype ("neoholotype") and paratypes selected from the syntypes by Fujita and Habe (1991: figs 5–6) and deposited at Ôtsu Hydrobiological Station, now known as the Center for Ecological Research, Kyoto University (Kantor et al. 2011: 70).

Valvata sincera Say, 1824

Original source: Say 1824: 264, pl. 15: fig. 11.

Type locality: North-west Territory, Canada.

Type specimens: lost (Walker 1906).

Remarks: Vernacular names: "mossy valvata" or "boreal turret snail".

"Valvata sinensis Yü et Lee" mentioned in Yü (1979: 191, Abstract) (nomen nudum)

+ Valvata sinensis Yü & Lee, 1983 (in Yü 1983; author names spelled according to Pan 1983: 211 and online type catalogue of Nanjing Institute).

Original source: Yü 1983: 338, pl. 1: figs 15-17.

Type horizon: Upper Cretaceous.

Type locality: Songliao Basin, China.

Holotype data: http://159.226.74.248:8000/searchbycontentnew.jsp?curPage=1 &showdetail=1&szlm=%3Ci%3EValvata%20sinensis%20%3C/i%3EYu%20et%20 Lee,%201983

+ Cincinna (Atropidina) singularis Gozhik, 2007

Original source: Gozhik 2007: 79, pl. 69: figs 4-7.

Type horizon: Miocene, Upper Sarmatian.

Type locality: near the village Michailowka, district of Wolgograd, Russia.

Cincinna (Sibirovalvata) sirotskii Starobogatov & Zatravkin, 1985

Original source: Starobogatov and Zatravkin 1985: 1157: fig. 2.

Type locality: Near Novyj Mir settlement, Komsomolskij district, Khabarovsk Territory (Far East), depth 0.2 m, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

+ Valvata (Aphanotylus) skhiadica Bukowski, 1895

Original source: Bukowski 1895: 24, 28–31 (description), 32, 34, 63, pl. 8: figs 9–11.

Type horizon: Upper Miocene (Paludina-layer).

Type locality: near Monastery Skhiadi, Rhodus Island, Greece.

Remarks: Lectotype designated by Willmann (1981: 76, textfig. 22).

### Valvata (Cincinna) skorikovi Lindholm, 1912

Original source: Lindholm 1912: 299–300.

Type locality: 5 stations in "Newabucht bei Kronstadt", near St. Petersburg, Russia. Syntype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg,

Nr. 1 in systematic catalogue under the name.

## Valvata depressa var. soluta Boettger, 1883

Original source: Boettger 1883: 343.

Type locality: near Athens, Greece.

## + Valvata (Cincinna) soceni Jekelius, 1944: 117, pl. 43: fig. 11-13

Original source: Jekelius 1944: 117, pl. 43: fig. 11-13.

Type horizon: Middle Miocene, Sarmatian.

Type locality: Soceni (Banat), Romania.

### Valvata (Cincinna) sorensis Dybowski, 1886

Original source: W. Dybowski 1886: 113–118, pl. 4: figs 1a–b (shell), 1<sup>a</sup> (operculum), 3a, a', b, c, d (radula), 5 (spawn).

Type locality: Posolskyj sor (eastern coast of Baikal), Russia.

Lectotype designated by Sitnikova et al. (2004) and deposited in Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

# + Valvata procera spatiosa Pierce, 2001 (in Pierce and Constenius 2001)

Original source: Pierce and Constenius 2001: 64, figs 14L-14N.

Type horizon: Oligocene.

Type locality: Northern Kishenehn Basin, Montana and British Columbia, Canada.

## Valvata spelaea Hauffen, 1856

Original source: Hauffen 1856b: 702, pl. 7: fig. 2.

Type locality: Cave of Glaven, Slovenia.

Remarks: Falkner et al. (2001) considered the taxon as a junior synonym of *Bythinella opaca* (M. von Gallenstein, 1848) (**Hydrobiidae**).

# Nerita sphaerica Müller, 1774

Original source: Müller 1774: 170-171 (Nr. 356).

Type locality: Not directly provided, but probably Denmark, since a Danish vernacular name (kugle neriten) is given by Müller (1774: 170).

Remarks: According to Küster (1852–1853: 84) a synonym of *Valvata contorta* Müller, 1774.

Valvata spirorbis Draparnaud, 1805

Original source: Draparnaud 1805: 41, pl. 1: figs 32-33.

Type locality: France.

Types not traced. Possibly, in Natural History Museum Vienna (fide Dance 1986).

Remarks: Sometimes (see e.g. for "Valvata andrezowski") regarded as synonym to Valvata cristata Müller, 1774, but considered as separate species by recent Russian authors, e.g. Anistratenko and Chernogorenko (1989), Anistratenko and Anistratenko (2001: 135), or Kantor et al. (2011: 74).

## "Valvata ssorensis" (GNI, ION)

Misspelled for *Valvata sorensis* Dybowski, 1886, probably based on *Valvata* (*Cincinna*) *ssorensis* [sic!] var. *abbreviata*: Lindholm 1909, with a long tradition among Russian authors based on Lindholm's papers.

Valvata stelleri Dybowski, 1903

Original source: Dybowski 1903: 46, textfig. 2-3.

Type locality: Lake Chalaktir, Kamtschatka, Russia.

Remarks: Kantor et al. (2011: 66) considered this taxon as synonym of *Valvata confusa* Westerlund, 1897.

Valvata (Cincinna) stenotrema Poliński, 1929

Original source: Poliński 1929: 135.

Type locality: Lake Ohrid, Macedonia.

Remarks: Anatomy (Rath 1986: 98ff) and molecular data (Hauswald et al. 2008) confirmed the valvatid nature of this taxon.

- "Valvata stenotrenta" (GNI), found also at GBIF\_Portal for Lund-Museum L934/3816 Misspelling of Valvata (Cincinna) stenotrema Poliński, 1929.
- + *Valvata stevanovici* Ilyina (Iljina in GNI and ION), 1982 (in Stevanovich and Ilyina 1982) Original source: Stevanovich and Ilyina 1982: 127–128, pl. 3: figs 6a–c.

Type horizon: Miocene.

Type locality: exact location ?? (data in Cyril / Serbian), eastern Serbia.

+ Valvata stiriaca [sic] Rolle, 1860

Original source: Rolle 1860: 34, pl. 2: figs 9-10.

Type horizon: Lower Pliocene, lignit (brown coal) layers.

Type locality: Schallthal, basin of Schönstein (now Šoštanj), "Lower Styria", Slovenia.

Valvata stoliczkana Nevill, 1878

Original source: Nevill 1878: 12, pl. 1: figs 34–36. Already mentioned as nomen nudum in Nevill (1877: 20).

Type locality: Yarkand, Xinjiang Uyghur autonomous region, China.

Valvata strebeli Fischer & Crosse, 1891

Original source: Fischer and Crosse 1880–1902 (Livraison 12, feuille 38: 1891): 304–305.

Type locality: "l'Etat du Mexico" = Estado Libre y Soberano de México, México.

Remarks: Replacement name for Valvata humeralis Strebel, 1873 (non Say, 1824).

Valvata striata Philippi, 1836 (non Lewis, 1856)

Original source: Philippi 1836: 147, pl. 8: fig. 3a-c.

Type locality: off Sicily, Mediterranean Sea.

Remarks: A marine species and according to its anatomy (Fretter 1956) classified as *Circulus striatus* in **Vitrinellidae** or **Tornidae**, although species identity in Fretter's paper appears doubtful.

Valvata striata Lewis, 1856 (in Lea 1856) (non Philippi, 1836)

Original source: Lea 1856: 260. Contents were entirely attributed to Lewis, so Lewis's authorship is correct under ICZN Art. 50.1.1.

Type locality: "Little Lakes", Otsego County, New York, USA (Lea 1856: 259).

Remarks: Name preoccupied and being replaced by *Valvata lewisi* Currier, 1868 (see there).

+ Valvata striolata Pavlović, 1928

Original source: Pavlović 1928: 61.

Type horizon: Upper Miocene, Pannonian (Serbian).

Type locality: Karagača stream (Vrčin, SSE Belgrade), Serbia.

Valvata studeri Boeters & Falkner, 1998

Original source: Boeters and Falkner 1998: 115, textfigs 1–4 (sketches of shell and head), pl. 14: figs 2–5 (shells), pl. 16: figs 13–14 (spawn).

Type locality: Schützing (nature reservate "Untere Alz"), South Bavaria, Germany. Holotype: Senckenberg-Museum Frankfurt SMF 311193.

Remarks: Introduced as a replacement name for *Valvata pulchella* sensu Studer (1820), but in fact a new species (see for *Valvata pulchella* Studer, 1789). Live photo by G. Falkner in Strong et al. (2008: 156).

Valvata subangulata Boettger, 1909 (in Wohlberedt 1909: authorship according to ICZN Art. 50.1.1)

Original source: Wohlberedt 1909: 697 (issue of journal) resp. 113 (in reprint), pl. 54: fig. 193.

Type localities: (1) River Zem near Angesta, (2) Bokumirska jezero = Lake Bukumirska (Podogorika), both Montenegro.

+ Amplovalvata subantiqua Yakushina (ION: Jakuschina), 1991

Original source: Yakushina 1991: 66, pl. 2: fig. 8.

Type horizon: Lower Cretaceous.

Type locality: North Choibalsan region, Mongolia.

+ Valvata subbiformis Gozhik, 1978 (in Gozhik and Prysjazhnjuk 1978)

Original source: Gozhik and Prysjazhnjuk 1978: 63, pl. 36: figs 22-24.

Type horizon: Middle or Upper Miocene, Sarmatian.

Type locality: Mykhailivka (= Michailovka = Mihalpol), Ukraine.

#### + Valvata subcarinata Brusina, 1878

Original source: Brusina 1878: 352. Figured by Porumbaru (1881: 39, pl. 9: fig. 10), Brusina (1897: 25, pl. 13: fig. 32–39), and by Miloshevich (1984: pl. 1: figs 8- 10). Type horizon: Pliocene - Pleistocene, Dacian-Romanian.

Type locality (Neumayr 1869): Černik (=St. Leonhardt), near Nova Gradiska, Croatia. Remarks: Replacement name for *Valvata piscinalis* as used by Neumayr (1869: 378, pl. 13: fig. 11).

"Valvata subdepressa" mentioned in Bielz (1864: 78) (nomen nudum with locality)

Locality: Upper Miocene - Lower Pliocene, Pontian ("schwarzer Thon", *Congeria*—layers); Krajova, Walachei (Tara Românească), Romania.

"Valvata subfasciata" (GNI).

Probably confused with Vivipara subfasciata Bourguignat, 1870.

Valvata contorta var. subglobosa Menke, 1845

Original source: Menke 1845: 116.

Type localities: "in lacubus Daniae, Galliae, Helvetiae (Hartmann), Germaniae; in Borussiae provinciae Brandenburgu lacu Ruppinensi (Feldmann, Martini), lac Müggelsee, ad Berlolinum (Ehrenberg), Vratislaviam (Scholtz), in Hannoverae lacu Seeburgensis (W. Dunker)".

Types: Not traced. Menke's collection was dispersed after his death (Dance 1986). Besides Menke's types also the cited specimens of the bibliographically given sources were syntypes.

+ Valvata subgradata Lörenthey, 1902

Original source: Lörenthey 1902: 283, pl. 20: figs 9a-c.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Budapest – Köbánya, Hungary.

Valvata piscinalis var. submucronata Schmidt, 1856

Original source: Schmidt 1856: 160. Without description, but with bibliographic reference to Stein (1850: pl. 2: fig. 28; legend at page 125 as *Valvata piscinalis*), thus available under ICZN Art. 12.2.1.

Type locality: Creek of Godesberg near Bonn, Germany.

+ Valvata subnaticina Lomnicki, 1886 (not Valvata piscinalis var. subnaticina Piaget, 1913)
Original source: Lomnicki 1886: 423.

Type horizon: Middle Miocene, Badenian.

Type locality: Goncharivka (= Wyczólki), Ukraine.

Remarks: "...der lebenden *Valvata naticina* Menke ähnlich" [similar to the extant *Valvata naticina* Menke] and thus probably belonging to genus *Borysthenia*.

Valvata piscinalis var. subnaticina Piaget, 1913 (not Valvata subnaticina Lomnicki, 1886) Original source: Piaget 1913: 87, figs 6, 9.

Type locality: River Areuse, Canton Neuchatel, Switzerland.

Remarks: A junior homonym of + Valvata subnaticina Lomnicki, 1886.

Valvata contorta var. subovata Menke, 1845

Original source: Menke 1845: 115–116.

Type localities: The name was based on a description by Menke and on various bibliographical references, in many of which localities were given. All these are type localities.

Types: Not traced. Menke's collection was dispersed after his death (Dance 1986). Besides Menke's types also the cited specimens of the bibliographically given sources were syntypes.

"Valvata subparvula" mentioned in Cossmann (1921: 170 (footnote))

Remarks: Cossmann (1921: 170, first line and footnote) refers to *Valvata parvula* as listed by Meek and Hayden (1876: 591) and thus later than *Valvata parvula* Deshayes, 1862 – which is not the case, however. *Valvata subparvula* is not an available name.

Locality: Tertiary; 3 miles below Fort Union, Nebraska, USA.

"Valvata piscinalis var. subpiscinalis Tournouër, 1866" mentioned in Wenz (1928b: 2435) An error by Wenz, the name is not mentioned in the cited paper (Bull. Soc. Geol. France ser. 2, Vol. 23: page 790), but Delafond and Depéret (1893: 152) referred the name to specimens of the collection of Tournouër.

"Valvata inflata var. subpiscinalis" mentioned in Tardy (1883: 571) (nomen nudum)

+ Valvata inflata var. subpiscinalis Delafond & Depéret, 1893.

Original source: Delafond and Depéret 1893: 87 (name only with locality), 152 (description), pl. 9: figs 49–51.

Type locality: Middle Pliocene; Saint-Amour, Département Jura, Region Franche-Comté, France.

Remarks: The name is referred to specimens of the collection of Tournouër.

Valvata subpiscinalis Kuščer, 1932

Original source: Kuščer 1932: 51–53, pl. 5: fig.1.

Type locality: "Der Rak-Bach unweit der jugoslavisch-italienischen Grenze" [the rak-creek near the Jugoslavian-Italian border], Slovenia.

Paratypes (Biological Institute, Scientific Research Centre of Ljublijana, No 1862) were figured by Arconada and Ramos (2006: 78).

Remarks: Type species of *Neohoratia* Schütt, 1961 (**Hydrobiidae**), see Kabat and Hershler (1993: 38), Bodon et al. (2001: 141), and Callot-Girardi and Girardi (2013).

+ Cincinna (Atropidina) subpulchella Gozhik, 2007

Original source: Gozhik 2007: 78, pl. 69: fig. 3.

Type horizon: Pleistocene or Holocene (Alluvium V. Terrace).

Type locality: river Danube near the village Nagornoye, district of Odessa, Ukraine.

+ Liratina subtilostriata Pan, 1980 (in Yü and Pan 1980)

Original source: Yü and Pan 1980: 149, figs ?? (not seen, listed in Zoological Record 1980(A2): #3883).

Type horizon: Mesozoic?

Type locality: Zhuji same Shan, province Zhejiang, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=36281

+ Planorbis subumbilicatus Meek & Hayden, 1856

Original source: Meek and Hayden 1856: 120. Cited as *Valvata subumbilicata* in Meek and Hayden (1876: 590, pl. 43: fig. 13a-c).

Type horizon: Lower Palaeocene, Thanétien.

Type locality: 3 miles below Fort Union, Nebraska, USA.

Cincinna sujfunensis Prozorova, 1998 (in Prozorova and Starobogatov 1998)

Original source: Prozorova and Starobogatov 1998: 65, 67, fig. 4H.

Type locality: Razdolnaya River near Razdolnoye settlement, Far East Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

Valvata sulcata Eydoux & Souleyet, 1852

Original source: Eydoux and Souleyet 1852, 2: 547, pl. 31: figs 19-21.

Type locality: Pondichéry = Puducherry, South-east India.

Remarks: Vernacular name "Valvée sillonnée". Considered as *Bithynia sulcata* (**Bithyniidae**) since Gray (1855: 20).

"Valvata sulechiana Cob. non Brus.", cited at page 53 in Senoner (Vienna) Cenni Biograpfici. Giornale di Scienze Naturali il Naturalisti Siciliano, 1884–85, vol. 4: pp. 45–60.

Misspelling of + Valvata sulekiana Cobălcescu, 1883, non Brusina, 1874 (see there).

+ Valvata sulekiana Brusina, 1874 (non Cobălcescu, 1883)

Original source: Brusina 1874: 89, pl. 6: figs 11–12. Also figured by Stefanescu (1896: 123, pl. 10: figs 145–149) and Wenz (1942: 42, pl. 11: figs 136–138).

Type horizon: Pliocene-Pleistocene, Dacian-Romanian.

Type locality: Marinac (near Varoš), Slavonia, Croatia.

+ Valvata sulekiana Cobălcescu, 1883 (non Brusina, 1874)

Original source: Cobălcescu 1883: 142, pl. 13, fig. 18.

Type horizon: Pliocene–Pleistocene, Dacian–Romanian; *Paludina*–layers.

Type locality: Barboşi (= Barboschi), Galati, Romania.

Remarks: An objective junior homonym of *Valvata sulekiana* Brusina, 1874 and thus replaced by *Valvata cobalcescui* Brusina, 1885 (see there).

+ Valvata tricarinata supracarinata Baker, 1921

Original source: Baker 1921: 24.

Type horizon: Pleistocene.

Type locality: near Morris, Grundy County, Illinois, USA.

Topotype: Museum of Natural History of the Univesity of Illinois, #P928.

Valvata (Tropidina) macrostoma var. suturalis Westerlund, 1886 (non Valvata suturalis Grabau, 1923)

Original source: Westerlund 1886: 140.

Type locality: Galicia near Przemysi: Kotula, Southeast Poland.

+ Valvata suturalis Grabau, 1923 (non Valvata (Tropidina) macrostoma var. suturalis Westerlund, 1886)

Original source: Grabau 1923: 161, pl. 2: figs 7e-g.

Type horizon: Upper Jurassic, Meng-Yin formation.

Type locality: Ning Chia Kou, Shandong, China.

+ Planorbis symmetricus Ludwig, 1865

Original source: Ludwig 1865: 96, pl. 21: figs 16, 16a, 16b. Cited as *Valvata symmetrica* (Ludwig) in Wenz (1928b: 2478).

Type horizon: Lower Miocene, Aquitanien.

Type locality: Kleinkarben in Hessen, Germany.

Valvata syracusana Locard, 1889: 35

Original source: Locard 1889: 35 (attributed to Bourguignat; but ICZN Art. 50.1.1 is not satisfied).

Type locality: Assapo near Syracus in Sicily, Italy.

"Valvata syriaca" mentioned in Innes (1884: 347) (nomen nudum with localities)

Localities: "... environs de Sayda en Syrie, a été constatée en Égypte sur les bords du lac Mariout; dans un marias à l'est de la Mahmoudieh; dans le lac du jardin khedivial de Ghizeh; sur les bords du lac Moeris, au Fayoun, et sur les rives de l'ancien lac Timsah.", all Egypt.

Remarks: Innes (1884: 347) refers to "Bourguignat, Spec. Moll. nº. 191, 1878".

However, as outlined by Connolly (1934), the latter works was never published. Innes (1884) presented with various localities (Syria, Egypt), he did not provide a description.

Valvata tacitiana Locard, 1889: 42

Original source: Locard 1889: 42 (attributed to Letourneux, but ICZN Art. 50.1.1 is not met).

Type locality: Marshes of Cressida, Corfu, Greece.

Valvata tasmanica Tennison Woods, 1876

Original source: Tennison Woods 1876: 82+ (additional note).

Type locality: Gould's County, north–easternTasmania.

Remarks: Type species of *Valvatasma* Iredale, 1943 (p. 203, **Hydrobiidae**), see Kabat and Hershler (1993: 56). *Beddomeia tasmanica* (Tennison-Woods, 1876) in the OBIS Indo-Pacific Database http://clade.ansp.org/obis/search.php/4996

### "Valvata tasolana" (GNI, ION)

As already noticed by Kobelt (1893: 20) this taxon is misspelled for *Valvata to-losana* Saint-Simon, 1870 (the latter taxon is lacking in GNI and ION; Sept.2013).

Valvata (Pseudomegalovalvata) tenagobia Bekman & Starobogatov, 1975

Original source: Bekman and Starobogatov 1975: 93, fig. 1A.

Type locality: Kharin-Irgi Bay (Oikhon Gates) [Baikal Lake], depth 32-39 m, Russia.

"Valvata (Ohridotropidina) relicta relicta f. tetracarinata" mentioned in Hadžišče (1956: 62–63, fig. 3)

Locality: Lake Ohrid, Macedonia.

Remarks: Originally proposed at infrasubspecific rank, thus not available under ICZN Art. 45.6.4. However, the name would be available, if an author before 1985 used it and gave it subspecific or specific rank (ICZN Art. 45.6.4.1). This was not fully checked and remains to be verified.

+ Valvata tenuistriata Fuchs, 1870

Original source: Fuchs 1870b: 536, pl. 21: figs 19-20.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

Remarks: Classified by Bandel (2010: 107, pl. 10: figs 120–125) as *Jekeliella* (**Hydrobiidae**).

"Valvata theocleti" mentioned in Sidiropoulou (2003: 36-37, fig. 13)

Locality: Pliocene – Pleistocene; Ptolemaida, West-Macedonia, Greece.

Remarks: This PhD–Thesis PhD–Thesis, in which 35 species are ostendibley described, does not meet the conditions of ICZN Art. 8.1.3 and 9.9. Accordingly, the name is not available.

#### Valvata theotokii Locard, 1889

Original source: Locard 1889: 42 (attributed to Letourneux, but ICZN Art. 50.1.1 is not met).

Type localities: (1) Fountain of Kardachi, (2) Marshes of Cressida, both Korfu, Greece.

## + Valvata tihanyensis Lörenthey, 1906

Original source: Lörenthey 1906: 171, pl. 1: figs 18–19.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: near Tihany at Lake Balaton, Hungary.

#### Valvata tilhoi Germain, 1909

Original source: Germain 1909: 376.

Type locality: Lake Chad, Algerie.

#### Valvata tolosana Saint-Simon, 1870

Original source: Saint-Simon 1870: 31–33.

Type locality: Toulouse, channel of Midi, France.

# + Valvata (Valvata) toplicani Miloshevich, 1984

Original source: Miloshevich 1984: 177, pl. 1: figs 41-47.

Type horizon: Pliocene-Pleistocene, Metohija Series.

Type locality: Topličane, Metohija basin, Kosovo.

## + Valvata tournoueri Capellini, 1880

Original source: Capellini 1880: 410-411, pl. 5: figs 7-12.

Type horizon: Upper Miocene (Congeria-layers).

Type locality: valley of Sterza di Laiatico, province of Pisa, Italy.

#### + Valvata transbaicalensis Martinson, 1961

Original source: Martinson 1961: 244-245, pl. 22: figs 4-5.

Type horizon: Lower Cretaceous.

Type locality: exact locality??, Eastern Sibiria, Russia.

#### Cyclostoma tricarinata Say, 1817

Original source: Say 1817: 13, cited as Valvata tricarinata by Say (1821: 173).

Type locality: river Delaware, USA.

Remarks: Verancular name: "three-ridge valvata". Anatomy, histology and development of the genital system were outlined by Furrow (1931, 1935). Live photo at: http://animaldiversity.ummz.umich.edu/site/accounts/information/Valvatidae.html

Helix tricarinata Megerle von Mühlfeld, 1824 (not Müller, 1774)

Original source: Megerle von Mühlfeld 1824: 220, pl. 8 resp. 2: figs 9a,b. "...da diese Schnecke zur Gattung *Valvata* des Draparnaud gehört..." [...since this snail belongs to genus *Valvata* of Draparnaud....].

Type locality: beach of Rimini (shells transported by rivers), Italy.

Remarks: According to figures identical (personal judgement) to *Helix nana* Megerle von Mühlfeld, 1824 (see there) and thus probably a synonym of *Valvata cristata* Müller, 1774.

### + Valvata trigeri Deshayes, 1862

Original source: Deshayes 1861–1863, Vol. 2: 525, pl. 36: figs 9–11.

Type horizon: Middle Eocene, Bartonian.

Type locality: Nantheuil-sur-Marne, Saint Aubin, pres le Mans, Basin de Paris, France.

#### Valvata contorta var. trochoidea Menke, 1845

Original source: Menke 1845: 116.

Type localities: The name was based on a description by Menke and on various bibliographical references, in many of which localities were given. All these are type localities.

Types: Not traced. Menke's collection was dispersed after his death (Dance 1986). Besides Menke's types also the cited specimens of the bibliographically given sources are syntypes.

## "Valvata troglobia" mentioned in Bole and Velkovrh (1986)

Remarks: According to Bodon et al. (2001: 177) mismatched because of the misleading title of Piersanti (1952: Una nuova specie italica di *Valvata* troglobia, *Valvata pusilla*, Mihi.), a nomen nudum.

#### + Valvata trouessarti Brusina, 1902

Original source: Brusina 1902: pl. 13: figs 28-30.

Type horizon: Pliocene-Pleistocene, Romanian (Paludina-layers).

Type locality: Szentes, Hungary.

#### + Valvata truckeensis Yen, 1950

Original source: Yen 1950b: 185, pl. 1: fig. 3.

Type horizon: Miocene, Truckee formation.

Type locality: Desert Queen Mine, northeastern corner of the Hot Spring Mountains, Western Nevada, USA.

#### + Valvata truncatella Li, 1984

Original source: Li 1984: 7, pl. 1: figs 20–22.

Type horizon: Lower Tertiary.

Type locality: Lingboa Basin of Henan Province, China.

Valvata umbilicata var. tubula Westerlund, 1886

Original source: Westerlund 1886: 140.

Type locality: Siberia, Russia.

### + Valvata tuostaiensis Wei, 1984

Original source: Xinjiang Dizhi Ju 1984: 84, figs? (not seen, title in Zoological Record 126(9): #3985).

Type horizon: ??

Type locality: Xinjiang Province, China.

+ Valvata tuozhuangensis Youluo, 1978 (name of author according to the online type catalogues of Nanjing Institute)

Original source: Youluo 1978: 31–32, pl. 4: figs 21–23.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

### + Valvata (Cincinna) turgensis Martinson, 1961

Original source: Martinson 1961: 245, pl. 22: figs 1–3. Also cited and figured in Zhu 1994: 93, pl. 2: figs 13–19.

Type horizon: Lower Cretaceous.

Type locality: not clear, since Martinson only listed several records: West Trans-Baikal region – Tarbagatay, Ulan-Ude Region, Kizhinga Region (Buryatia); Ost Trans-Baikal Region – Arbagar, Turga; Vilyuysk, Baysa; south–east Mongolia.

## Valvata turgidula Locard, 1889

Original source: Locard 1889: 53 (attributed to Bouguignat, but ICZN Art. 50.1.1 is not satisfied).

Type locality: Lac de Négresse, Bayonne, Pyrénées-Atlantiques, France.

Remarks: Probably synonymous to *Valvata minuta*, now *Islamia globulina* (see Bodon et al. (2001: 177, 202).

# "Valvata (Atropidina) turislavica" mentioned in Floriu (2011: 32)

Probably confused with + Caspia turislavica Jekelius, 1944.

### + Atropidina turpanensis Zhu, 1994

Original source: Zhu 1994: 96 (Chinese) / 103 (English), pl. 1, figs 7-12.

Type horizon: Middle Jurassic, Qiktim Formation.

Type locality: Xiabakan, Shanshan County, Turpan Basin, Northern Xinjiang, China.

Holotype: http://www.nimrf.net.cn/ept/eptDataDetail.action?ptzyh=2332C0001 000004184

Cincinna (Sibirovalvata) tymiensis Starobogatov, 1985 (in Starobogatov and Zatravkin 1985) Original source: Starobogatov and Zatravkin 1985: 1157: fig. 3. Type locality: Sakhalin Island, right bank of the River Tym' near Nogliki settlement, Russia.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 under the name.

"Valvata umbilicata" mentioned in Fitzinger (1833: 117) (nomen nudum with locality) Locality: Gosau-See, Upper Austria.

Valvata umbilicata Servain, 1881: 94.

Original source: Servain 1881: 94 (attributed to "Parreyss mss.", but ICZN Art. 50.1.1 is not satisfied).

Type locality: "dans la vallée du Siô dans les endroits marécagenx", Lake Balaton, Hungary.

Remarks: It is beyond the scope of this contribution to check, whether the specimens of Servain (1881) are identical to those of Westerlund (1886) – if this is possible at all on shells alone. It is possible that Fitzinger communicated the name to Parreyss, and Parreyss labelled the name, and Servain thought that the name must be attributed to Parreyss.

### Valvata umbilicata Westerlund, 1886

Original source: Westerlund 1886: 140. Cited and figured first by Rossmässler and Kobelt (1910: 15, pl. 399, fig. 2289) with bibliographic reference to Westerlund (1886).

Type localities: various countries between Sweden and Austria.

Remarks: Westerlund expressively attributed the name to the nomen nudum of Fitzinger (1833), which is not available, however. Accordingly, the naming by Servain (1881) has priority, if these are two different species.

Valvata unicarinata De Kay, 1843 (non Lörenthey, 1894)

Original source: De Kay 1843: 118-119, pl. 6: fig. 129a-b.

Type locality: Lake Champlain and Erie Channel (New York), USA.

+ Valvata unicarinata Lörenthey, 1894 (non De Key, 1843)

Original source: Lörenthey 1894: 120 (50), pl. 5: fig. 1.

Type horizon: Upper Miocene - Pliocene, Pannonian (Portaferrian).

Type locality: Séd-creek, Bálint-bridge, Szekszárd, Hungary.

Remarks: a junior homonoym of Valvata unicarinata De Kay, 1843.

+ Valvata unicarinifera Hislop, 1859

Original source: Hislop 1859: 170, pl. 5: fig. 14.

Type horizon: Tertiary.

Type locality: Little Tisti, Karwad, Butárá, East India.

+ Valvata simplex var. unicincta Lörenthey, 1906

Original source: Lörenthey 1906: 165, pl. 1: fig. 16.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Fehérpart near Tihany, Hungary.

Valvata sincera var. utahensis Call, 1884

Original source: Call 1884: 22, 24, 25, 44, pl. 6: figs 1-3.

Type locality: Utah Lake, USA.

Holotype: U.S. National Museum # 31277.

Remarks: Vernacular names: Utah roundmouth snail, desert valvata. Hovingh (2004) stated that *Valvata utahensis* is a polymorphic species exhibiting a wide range of forms. Miller et al. (2006) and Hauswald et al. (2008) provided DNA-sequences for unequivocal identification.

+ Amplovalvata valareslebensis Huckriede, 1967

Original source: Huckriede 1967: 169, pl. 23: figs 29a-31c.

Type horizon: Upper Jurassic, Middle Kimmeridgian.

Type locality: southeast of Sülfeld, Fallersleben, Germany.

+ Valvata vallestris Fontannes, 1876

Original source: Fontannes 1876: 52, pl. 1: fig. 3.

Type horizon: Upper Miocene.

Type locality: Moulin de Fully near Saint-Quentin-Fallavier (= La Fuly); Bas Dauphine, southeast of Lyon, France.

Remarks: "Valvata cf. vallestris Fontannes" mentioned in Schlosser (1907: 24, pl. 1: fig. 22) has been named Valvata (Valvata) schlosseri, Royo Gómez 1922 (see there).

"Valvata (Valvata) valvestris Fontannes" by Locard (1878: 62)

Misspelling of + Valvata vallestris Fontannes, 1876.

+ Valvata (Tropidina) vanciana Tournouër, 1875

Original source: Tournouër 1875: 742 (name only), 744–746 (description), pl. 28: figs 3–4.

Type horizon: Upper Miocene.

Type locality: Fort de Vancia near Lyon, Département de Ain, France.

+ Valvata variabilis Fuchs, 1870

Original source: Fuchs 1870a: 346, pl. 14: fig. 10-12, 17-19.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Rădmănești, near Lugos in Banat, Romania.

Remarks: Considered as *Muellerpalia varians* (Fuchs, 1870) (**Hydrobiidae**) by Bandel (2010: 104, pl. 8: figs 90–94).

+ Valvata varians Lörenthey, 1902

Original source: Lörenthey 1902: 281, pl. 20: figs 6-8.

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Budapest - Köbánya; Hungary.

+ Pachystoma varicatum Tausch, 1886

Original source: Tausch 1886: 13, pl. 2: figs 6a-d, 7a-b, 8a-b.

Type horizon: Upper Cretaceous - "Gosaumergel".

Type locality: Csinger valley near Ajka in Bakony, Hungary.

Remarks: Type species of *Ariomphalus* Bandel & Riedel, 1994 (p. 22), who also figured the shell and protoconch by SEM (23, pl. 14: figs 1–3).

+ Valvata sabaudiensis var. varicosa Koert, 1898

Original source: Koert 1898: 42, lower textfigure.

Type horizon: Jurassic/Cretaceous border.

Type locality: southwest of Selter hill, Lower Sachsian, Germany.

"Valvata (Tropidina) vauciana"

Misspelling of + *Valvata* (*Tropidina*) *vanciana* Tournouër, 1875 in the catalogue of the Museum National d'Histoire Naturelle (Paris) at http://coldb.mnhn.fr/Scientific-Name/Valvata/vauciana

+ Valvata (Atropidina) velitzelosi Schütt & Velitzelos, 1991

Original source: Schütt and Velitzelos 1991: 5-6, pl. 2: fig. 22.

Type horizon: Upper Miocene.

Type locality: Kerasia, Island of Euboea, Greece.

+ Cincinna vetusta Kormos, 1911

Original source: Kormos 1911b: ?? (not seen).

Type horizon: Upper Miocene, Pannonian (Transdanubian).

Type locality: Mencshely, Lake Balaton, Hungary.

+ Cincinna (Cincinna) vinogradovskense [sic] Gozhik, 2002 [should be vinogradovskensis, since Cincinna is feminine]

Original source: Gozhik 2002: 48, pl. 2: fig. 15–17. Also figured by Gozhik (2007: pl. 66: figs 1–3).

Type horizon: Miocene, Pontian. Type locality: Vinograd, Ukraina.

Valvata virens Tryon, 1863

Original source: Tryon 1863: 148, pl. 1: fig. 2.

Type locality: Clear Lake, California, USA.

Remarks: Vernacular name: "emerald valvata". A recent species considered to be extinct by human activities (pollution), however.

#### "Valvata viridana Stentz"

Cited (with doubts) by Strobel (1851: 98) and by Gredler 1859: 250 (#144) but unknown, probably another shell-dealer name (see above for *Valvata impura*).

### + Valvata (Aegaea) vivipariformis Oppenheim, 1891

Original source: Oppenheim 1891: 462–463, pl. 26: fig. 1, 1a-c.

Type horizon: Lower Pleistocene.

Type locality: Koumaris (= Kumari) near Aegion, Greece.

Remarks: According to the size (10 mm) and aperture (not round) probably not a valvatid, but a species of **Viviparidae** (certainly not a "missing link" between the two families as assumed by Oppenheim, since both families are very distantly related). Type species of *Aegaea* Oppenheim, 1891.

## "Valvata viviparum"

Cited by Liess and Hillebrandt (2005) and Liess et al. (2006) from Lake Erken (Sweden), but most probably confused with *Viviparus viviparus* (Linnaeus, 1758).

## Valvata (Microcincinna) vystitiensis Chernogorenko & Starobogatov, 1987

Original source: Chernogorenko and Starobogatov 1987: 148.

Type locality: Vyshtitis Lake, at the border of Kaliningrad district and Lithuania.

Holotype: Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Nr. 1 in systematic catalogue under the name.

## + Valvata vrabceana Gorjanović-Kramberger, 1890

Original source: Gorjanović-Kramberger 1890: 156, pl. 6: fig. 8.

Type horizon: Upper Miocene, Pannonian (Slavonian).

Type locality: Vrapče (Zagreb), Croatia.

## Valvata wagneri Kuščer, 1928

Original source: Kuščer 1928: 50, fig. 1.

Type locality: "Vranja peč" cave near Boštanj, Svenica, Krso, Slovenia.

Remarks: Type species of *Vrania* Radoman, 1978: 35 (**Hydrobiidae**), see Binder (1967), Kabat and Hershler (1993: 57), and Bodon et al. (2001: 154, figs 163–160).

# Valvata perdepressa walkeri Baker, 1930

Original source: Baker 1930: 188.

Type locality: Southern part of Lake Michigan, USA.

+ Valvata (Atropidina) wenzi Papp, 1953

Original source: Papp 1953: 110, pl. 4: figs 4–5.

Type horizon: Upper Miocene, Pannonian.

Type locality: Eichkogel bei Mödling, Lower Austria.

Remarks: SEM of shell and (typically valvatid) protoconch were depicted by Harzhauser and Binder (2004: 11, pl. 3: figs 7–8).

+ Valvata whitei Hannibal, 1910

Original source: Hannibal 1910: 107.

Type horizon: Marl-deposit, Upper Lahontan Quaternary.

Type locality: near Summer Lake, Oregon, USA.

+ Aphanotylus whitei Dall, 1924

Original source: Dall 1924: 115, pl. 26: fig. 7.

Type horizon: Pliocene - Pleistocene, Idaho Formation.

Type locality: Castle Creek, Owyhee County, Idaho, USA.

+ Valvata (Turrivalvata) soceni wiesenensis Papp, 1954

Original source: Papp 1954: 25, pl. 3: figs 23–24.

Type horizon: Middle Miocene – Sarmatian.

Type locality: Wiesen, Eisenstadt-Sopron Basin; Burgenland, Austria.

+ Valvata windhauseni Parodiz, 1961

Original source: Parodiz 1961: 16-18, pl. 1: figs 1-6.

Type horizon: Lower Tertiary.

Type locality: Nahuel Niyeu (25 miles west of Valvheta), Rio Negro province, Argentina.

Valvata winnebagoensis Baker, 1928.

Original source: Baker 1928: 475-476, pl.1: figs 11-13.

Type locality: Miller Bay, Lake Winnebago, Wisconsin, USA.

Remarks: Vernacular name: "flanged valvata".

+ Valvata woodwardi Kennard, 1911

Original source: Kennard 1911: 324-325, 1 textfig.

Type horizon: Pleistocene, Cromerian Stage.

Type locality: West Runton, Norfolk, England.

Remarks: Considered as a synonym of Valvata goldfussiana Wüst, 1901 by Wüst (1912).

+ Valvata yaviana Fritzsche, 1924

Original source: Fritzsche 1924: 23, pl. 2: figs 7a-c.

Type horizon: Cretaceous.

Type locality: limestone of Yavi, North of province of Jujuy, Argentina.

+ Valvata yongkangensis Yü, 1980

Original source: Yü and Pan 1980: 147, figs ?? (not seen, listed in Zoological Record 1980(A2): #3883).

Type horizon: Mesozoic?

Type locality: Zhejiang, southern Anhui, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=18572

+ Valvata piligera yukonensis Clarke & Harington, 1978

Original source: Clarke and Harington 1978: 47, fig. 2A–D.

Type horizon: Pleistocene.

Type locality: Old Crow Basin, Yukon Territory, Canada.

+ Sinorificium yumenensis Guo, 1982 (in Guo et al. 1982)

Original source: Guo et al. 1982: 34, pl. 13: figs 9-14.

Type horizon: Lower Cretaceous.

Type locality: Shaanxi, Gansu and Ningxia, North-west China.

Remarks: Currently regarded (Paleobiology Database) as a neotaenioglossan species.

+ Valvata zhongbaensis Yü, 1974

Original source: Yü 1974: 372, pl. 198: figs 18-19.

Type horizon: Lower Jurassic.

Type locality: Sichuan Jiangyou, China.

+ Valvata zhongjiangensis Pan, 1982

Original source: Pan 1982: ??, figs 18–21 (not seen, not in Zoological Record, data from online type catalogue of Nanjing Institute).

Type horizon: Upper Jurassic, Penglaizhen formation.

Type locality: Zhongjiang County Cangshan, Sichuan Basin, China.

Holotype: http://159.226.74.248:8000/viewSpeciDetailsNormal.jsp?bbbh=53434

+ Valvata zhouqingzhuangensis Youluo, 1978 (name of author according to the online type catalogues of Nanjing Institute)

Original source: Youluo 1978: 28-29, pl. 4, figs 24-25.

Type horizon: Lower Tertiary.

Type locality: coastal region of Bohai, China.

+ Valvata (Cincinna) zhuchengensis Pan, 1983.

Original source: Pan 1983: 213, pl. 1: figs 7-9.

Type horizon: Lower Cretaceous - Xiazhuang Formation.

Type locality: Shichang-Zhonglou Basin in North China.

+ Valvata zschokkei Bollinger, 1921

Original source: Bollinger 1921: 8, textfig. 2.

Type horizon: Pleistocene, Interglacial "Schieferkohle".

Type locality: Dürnten, Kanton Zürich, Switzerland.

### **Acknowledgements**

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#### **References**

#### Remarks

If authors were originally written in Cyril lettering or Chinese wording I either use the Latin version found in the original paper or (sometime several) the Latin version(s) found in the later literature citing that paper. Usually the original title and an English or French translation of the title or journal are provided.

As far as possible I provide here direct www-links to the first page of the respective papers and books. Mostly they have been found in the Biodiversity Library respectively at www.archive.org, via Gallica http://gallica.bnf.fr/ respectively in the Jubilothece http://jubilotheque.upmc.fr/, and in the digital library "DigiLit" of the Oberöster-reichisches Landesmuseum Linz (please, provide an English introduction for international users!) at <a href="http://www.landesmuseum.at/datenbanken/digilit/">http://www.landesmuseum.at/datenbanken/digilit/</a>, reflecting the extremely high value and help provided by these institutions. On the other hand the substantial content of the digital library of the Haiti Trust http://catalog.hathitrust.org is of very limited use, since it is available only for few US-colleagues. It is particularly hard to understand, why contributions prior to 1923 cannot be offered online "due to copyright restrictions".

If not stated otherwise these e-libraries are free for download or view. This also is true for Google-books, where registration, but no fee is required. Note that the digital page numbers often do not correspond with the printed page numbers. All Roman numbers of pre-pages or plates are listed in Arabic numbers for convenience.

I add here the urgent ask for all responsible persons and societies for journals or books not yet digitized to do so as soon as possible at least for the elder volumes before 1923 (no copyright restrictions) in order to facilitate and accelerate taxonomy as science. Concerning the present work the "most wanted" journals are the *Archiv für Molluskenkunde* and the *Mitteilungen der Deutschen Malakozoologischen Gesellschaft*. In addition, I (and the whole malacological community as well) will be grateful for any tip concerning a new or overlooked source of electronic copy of any reference not yet covered herein.

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## Final remarks

Despite much time and effort (and the truly substantial input by all the reviewers), the present contribution is neither complete nor entirely free of errors. The main reason for these shortcomings is the non-availability of certain papers, in particular those of Russian and Chinese paleontologists. Accordingly, for a future update I ask all readers and colleagues to send me corrections, additions (e.g. sources of type material), and (preferably electronic) copies of papers not yet or insufficiently indexed.